

Exhibit A

INTERNATIONAL CENTRE FOR DISPUTE RESOLUTION
International Arbitral Tribunal

ICDR Case No. 01-18-0002-9174

INTERNATIONAL ENGINEERING & CONSTRUCTION S.A. (Luxembourg)
GREENVILLE LIQUEFIED NATURAL GAS COMPANY, LTD. (Nigeria)
(f/k/a Greenville Oil & Gas Company, Ltd.)

(Claimants)

- and -

BAKER HUGHES ENERGY SERVICES LLC (Delaware, USA)
(f/k/a GE Oil & Gas, LLC, f/k/a GE Oil & Gas, Inc.)
GE INTERNATIONAL OPERATIONS (NIGERIA) LTD. (Nigeria)
PRESSURE CONTROL SYSTEMS NIGERIA LIMITED (Nigeria)
(as successor to GE International Operations (Nigeria) Ltd.)
BAKER HUGHES COMPANY (Delaware, USA)
(f/k/a Baker Hughes, a GE Company) (as successor to Baker Hughes Energy Services LLC)
BAKER HUGHES HOLDINGS LLC (Delaware, USA)
(f/k/a Baker Hughes, a GE Company, LLC) (as successor to Baker Hughes Energy Services LLC)

(Respondents)

FINAL AWARD

Arbitral Tribunal
Paul F. Saba
Stefano Azzali
David Arias (Presiding Arbitrator)

New York City, 30 October 2020

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LIST OF DEFINED TERMS

Additional Hearing	The hearing for closing arguments that took place on 21 January 2020
Appendix A	Appendix A, "Scope of Supply," to the Equipment Contract (Exhibit C-770) (Exhibit R-17)
BHGE	Baker Hughes Company (f/k/a Baker Hughes, a GE Company)
BHGE Entities	BHGE and BHGE LLC
BHGE LLC	Baker Hughes Holdings LLC (f/k/a Baker Hughes, a GE Company LLC)
Chart	Chart Industries Inc. and Chart Energy and Chemicals Inc.
Claimants' First Post-Hearing Brief	Claimants' Post-Hearing Submission, of 3 March 2020
Claimants' Second Post-Hearing Brief	Claimants' Reply to Respondents' First Post-Hearing Brief, of 8 May 2020
Claimants' Cost Submission	Claimants' Submission on Fees and Costs of 29 May 2020
Contracts	The Equipment Contract and the Services Agreement
Counterclaimants	GEOG and GE Nigeria
Cs' PHB1	Claimants' First Post-Hearing Brief
Cs' PHB2	Claimants' Second Post-Hearing Brief
Draft PO1	Draft Procedural Order No. 1 sent by the Arbitral Tribunal to the Parties on 28 November 2018
Equipment Contract	Contract for the Sale of Two Small Scale (SCMR) LNG Plants entered into between GEOG and IEC on 13 September 2014 (Exhibit C-1) (Exhibit R-1)
GE Entities	GEOG and GE Nigeria
GE Nigeria	GE International Operations (Nigeria) Ltd.
GEOG	Baker Hughes Energy Services LLC (f/k/a GE Oil & Gas, LLC, f/k/a GE Oil & Gas, Inc.)
Greenville	Greenville Liquefied Natural Gas Company, Ltd. (f/k/a Greenville Oil & Gas Company, Ltd.)
Guarantee	Guarantee Agreement, dated 13 September 2014 entered into between GEOG and IEC on 13 September 2014 (Exhibit C-3) (Exhibit R-18)

Hearing	Evidentiary hearing that took place from 9 to 20 December 2019
HHCs	Heavy hydrocarbons
HHR	Heavy hydrocarbon removal system
ICDR Guidelines	ICDR Guidelines for Arbitrators Concerning Exchanges of Information
ICDR/AAA	International Centre for Dispute Resolution/American Arbitration Association
IEC	International Engineering & Construction S.A.
MRC	Mixed Refrigerant Compressor
Parties	The Claimants and the Respondents
PCSNL	Pressure Control Systems Nigeria Limited
Preliminary Hearing	Preliminary hearing held on 4 December 2018
PRVs	Pressure relief valves
Respondents' Cost Submission	Respondents' Cost Submission of 29 May 2020
Respondents' First Post-Hearing Brief	Respondents' First Post Hearing Brief of 3 March 2020
Respondents' Second Post-Hearing Brief	Respondents' Second Post Hearing Brief of 8 May 2020
Rs' PHB1	Respondents' First Post-Hearing Brief
Rs' PHB2	Respondents' Second Post-Hearing Brief
Rules	American Arbitration Association's Commercial Arbitration Rules in force since 1 October 2013
Rumuji Plant	LNG plant in Nigeria, located in Rumuji, Rivers State
Services Agreement	Services Agreement entered into between GE Nigeria and IEC on 13 September 2014 (Exhibit C-2) (Exhibit R-2)
SoC	Statement of Claim
SoCC	Statement of Counterclaim
SoD	Statement of Defense
SoR	Statement of Reply
Statement of Claim	Claimants' Statement of Claim and Statement of Defense to Counterclaim of 15 March 2019
Statement of Counterclaim	Respondents' Statement of Counterclaim of 18 January 2019
Statement of Defense	Respondents' Statement of Defense to Claim and Reply on Counterclaims of 2 September 2019

Statement of Reply	Claimants' Reply Submission of 15 November 2019
Tr.	Transcript of the Hearing held in New York City between 9 and 20 December 2020
Tr. Milan	Transcript of the Additional Hearing held in Milan on 21 January 2020
Train 1	The first of two fully-modular small scale LNG production plants or trains purchased under the Equipment Contract
Train 2	The second of two fully-modular small scale LNG production plants or trains purchased under the Equipment Contract
Train 3	Small scale LNG plant produced for Shell for its Canadian Green Corridor project in Northern Canada
Trains	Train 1 and Train 2
VFD	Variable frequency drive

1. WE, THE UNDERSIGNED ARBITRATORS, having been designated in accordance with the arbitration agreements dated 13 September 2014,¹ and having been duly sworn, and having duly heard the proofs and allegations of the parties, do hereby, AWARD, as follows:

I. PARTIES, LEGAL REPRESENTATIVES, ARBITRAL TRIBUNAL AND TRIBUNAL SECRETARY

A. The Parties

2. The Claimants are:

- (i) International Engineering & Construction S.A. ("IEC"), a corporation organized and existing under the laws of Luxembourg, with tax identification number LU 262 44 169, and with registered office at Rue de Neudorf 36 L-2222, Luxembourg, Luxembourg.
- (ii) Greenville Liquefied Natural Gas Company, Ltd. (f/k/a Greenville Oil & Gas Company, Ltd.²) ("Greenville" and, together with IEC, the "Claimants"), a corporation organized and existing under the laws of the Federal Republic of Nigeria, with tax identification number 17890269-0001, and with registered office at 45B T.Y. Danjuma Street, Asokoro, Abuja.

3. The Respondents are:

- (i) Baker Hughes Energy Services LLC (f/k/a GE Oil & Gas, LLC,³ f/k/a GE Oil & Gas, Inc.⁴) ("GEOG"), a corporation organized and existing under the laws of the State of Delaware, USA, with tax identification number 06-1507509, and with primary business office at 17021 Aldine Westfield Road, Houston, Texas 77073, USA.
- (ii) GE International Operations (Nigeria) Ltd. ("GE Nigeria" and, together with GEOG, the "Counterclaimants" or the "GE Entities"), a corporation organized and existing under the laws of the Federal Republic of Nigeria, with tax identification number RC 38028, and with registered and principal address at Mansard Place, Plot 927/928 Bishop Aboyade Cole Street, Victoria Island, Lagos, Nigeria.
- (iii) Pressure Control Systems Nigeria Limited ("PCSNL") (as successor to GE Nigeria), a corporation organized and existing under the laws of the Federal Republic of Nigeria, with tax identification number 629215, and with registered and principal address at Mansard Place, Plot 927/928 Bishop Aboyade Cole Street, Victoria Island, Lagos, Nigeria.

¹ See below, ¶12.

² See Claimants Reply Submission of 15 November 2019 (the "Statement of Reply" or "SoR"), ¶1.

³ See Respondents' Second Post Hearing brief of 8 May 2020 ("Respondents' Second Post-Hearing Brief" or "Rs' PHB2"), ¶34.

⁴ See Counterclaimants' Demand for Arbitration of 14 August 2018, ¶1, Footnote 1.

- (iv) Baker Hughes Company (f/k/a Baker Hughes, a GE Company⁵) (as successor to GEOG) ("BHGE") a corporation organized and existing under the laws of Delaware, with tax identification number 81-4403168, and with primary business office at 17021 Aldine Westfield Road, Houston, Texas 77073, USA.
- (v) Baker Hughes Holdings LLC (f/k/a Baker Hughes, a GE Company LLC⁶) (as successor to GEOG) ("BHGE LLC" and, together with BHGE, the "BHGE Entities," and, together with GEOG, PCSNL, GE Nigeria and BHGE, the "Respondents," and together with the Claimants, the "Parties"), a corporation organized and existing under the laws of Delaware, with tax identification number 76-0207995, and with primary business office at 17021 Aldine Westfield Road, Houston, Texas 77073, USA.

B. The Parties' legal representatives

- 4. The Claimants are represented by:

Yaakov Adler, Esq.

Peter J. Gutowski, Esq.

J. Tanner Honea, Esq.

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⁵ See Rs' PHB2, ¶34.

⁶ See Rs' PHB2, ¶34.

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5. The Respondents are represented in the present arbitration by:

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C. The Arbitral Tribunal

6. The Arbitral Tribunal, which consists of three arbitrators, has been constituted as follows:

7. The Claimants have appointed as co-arbitrator:

Paul F. Saba, Esq.
c/o KPR Associates
292 Newbury St., #542
Boston, MA 02115
USA
T. +1 617 267-4101
pfsaba1@gmail.com

8. The Respondents have appointed as co-arbitrator:

Avv. Stefano Azzali
Corso Genova n. 21
20123 Milan
Italy
T. +39 335 588 8573
stefano.azzali@mi.camcom.it

9. The co-arbitrators have jointly appointed as Presiding Arbitrator:

David Arias
Herbert Smith Freehills Spain LLP
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Spain
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david.arias@hsf.com

10. The appointment of the members of the Arbitral Tribunal has been confirmed by the International Centre for Dispute Resolution/American Arbitration Association (the "ICDR/AAA").

D. The Tribunal Secretary

11. The Arbitral Tribunal has appointed as Tribunal Secretary:

Luis Capiel
Herbert Smith Freehills Spain LLP
Velazquez 63
28001 Madrid
Spain
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II. THE ARBITRATION AGREEMENTS

12. The Claimants and the Counterclaimants submitted claims based on:

(i) Clause 20 of the "Contract for the Sale of Two Small Scale (SCMR) LNG Plants" entered into between GEOG, as seller, and IEC, as buyer, on 13 September 2014 (the "**Equipment Contract**"⁷), which reads as follows:

"20. DISPUTE RESOLUTION

20.1 In the event of any dispute arising out of or in connection with the Agreement, the Parties agree to submit the matter to arbitration to be administered by the AAA under its Commercial Arbitration Rules before a board of three (3) persons consisting of one (1) arbitrator to be appointed by Seller, one (1) arbitrator by Buyer, and one (1) by the two so chosen, who will act in the capacity as procedural chairman. The seat, or legal place, of the arbitration shall be New York City, New York. The language to be used in the arbitration shall be English. Judgment on any award rendered by the arbitrators, or a majority thereof, may be entered by a court of competent jurisdiction.

20.2 In the event Buyer makes claims against Seller and the Services Provider under the Services Contract;

then in such case:

(a) Seller agrees to appear and participate as a party defendant in the same New York arbitration proceedings commenced under the Services Agreement;

(b) the arbitration shall be conducted in one proceeding before a single board of three persons consisting of one (1) arbitrator to be appointed jointly by Seller and Services Provider, one (1) arbitrator by Buyer, and one (1) by the two so chosen, who will act in the capacity as procedural chairman, all other terms and conditions of this Clause to apply;

(c) In the case of an arbitration involving Seller and Services Provider, Seller agrees that it shall not assert Services Provider's performance or non-performance under the Service Contract as a defense to any claim by Buyer."

⁷ Exhibits C-1 and R-1.

(ii) Clause 20 of the "Services Agreement" entered into between GE Nigeria, as services provider, and IEC, as buyer, on 13 September 2014 (the "**Services Agreement**,"⁸ and together with the Equipment Contract, the "**Contracts**"), which reads as follows:

"20. DISPUTE RESOLUTION

20.1 In the event of any dispute arising out of or in connection with the Services Contract, the Parties agree to submit the matter to arbitration to be administered by the AAA under its Commercial Arbitration Rules before a board of three (3) persons consisting of one (1) arbitrator to be appointed by Services Provider, one (1) arbitrator by Buyer, and one (1) by the two so chosen, who will act in the capacity as procedural chairman. The seat, or legal place, of the arbitration shall be New York City, New York. The language to be used in the arbitration shall be English. Judgment on any award rendered by the arbitrators, or a majority thereof, may be entered by a court of competent jurisdiction.

20.2 In the event Buyer makes claims against Seller and the Services Provider under the Services Contract;

then in such case:

(a) Services Provider agrees to appear and participate as a party defendant in the same New York arbitration proceedings commenced under the Sales Contract;

(b) the arbitration shall be conducted in one proceeding before a single board of three (3) persons consisting of one (1) arbitrator to be appointed jointly by Seller and Services Provider, one (1) arbitrator by Buyer, and one (1) by the two (2) so chosen, who will act in the capacity as procedural chairman, all other terms and conditions of this Clause to apply;

(c) In the case of an arbitration involving Seller and Services Provider, Service Provider agrees that it shall not assert Seller's performance or non-performance under the Sales Contract as a defense to any claim by Buyer."

13. The Claimants also submitted a claim based on Clause 7 of the "Guarantee Agreement" entered into between GEOG, as guarantor, and IEC, as buyer, on 13 September 2014 (the "**Guarantee**"⁹), which reads as follows:

"7. Any and all disputes arising under or relating to this Guarantee shall be subject to the Dispute Resolution Clause (the arbitration clause) as contained the Services Agreement, which is incorporated herein by reference, with the understanding that any

⁸ Exhibits C-2 and R-2.

⁹ Exhibits C-3 and R-18.

references to Seller in that clause shall be considered a reference to Guarantor for purposes of this Guarantee, and Guarantor agrees, upon demand, to appear and participate in any arbitration commenced by Buyer against Services Provider, Guarantor not to be entitled to appoint a separate arbitrator."

III. PLACE OF THE ARBITRATION

14. Pursuant to the above arbitration agreements, the place of the arbitration is New York City, New York, U.S.A.

IV. LANGUAGE OF THE ARBITRATION

15. Pursuant to the above arbitration agreements, the language of this arbitration is English.

V. APPLICABLE LAW

16. Pursuant to Clause 21.1 of the Equipment Contract, Clause 21.1 of the Services Contract and Clause 8 of the Guarantee, the applicable law is the law of the State of New York, U.S.A., without regard to its conflict or choice of laws rules. Clause 21.1 of the Equipment Contract, Clause 21.1 of the Services Contract further stipulate that the UN Convention on the International Sale of Goods (CISG) shall not apply.

VI. FORM OF THIS FINAL AWARD

17. As per the Parties' agreement with respect to Rule R-46(b) of the Rules, as reflected in ¶115 of Procedural Order No. 1, this final award is a reasoned award.

VII. PROCEDURAL HISTORY

A. Commencement of the arbitration and constitution of the Arbitral Tribunal

18. On 31 July 2018, the Claimants filed a Notice of Demand and Commencement of Arbitration with the ICDR/AAA concerning claims under the Equipment Contract, the Services Agreement, the Guarantee and further agreements. The claims under the Equipment Contract were made against GEOG and the BHGE Entities. The Claims under the Services Agreement and the Guarantee were made against all Respondents. The case was assigned ICDR/AAA case number 01-18-0002-9174.
19. On 14 August 2018, the Counterclaimants filed a Demand for Arbitration against IEC, selecting Mr Stefano Azzali as their party-appointed co-arbitrator. The case was assigned ICDR/AAA case number 01-18-0003-0793.
20. On 17 August 2018, the ICDR/AAA held an administrative conference call with the Parties.

21. On 20 August 2018, the ICDR/AAA sent a letter to the Parties in which it:

- (i) Determined that the Claimants' claims under the Equipment Contract, the Services Contract, and the Guarantee were ripe for initiation with an effective commencement on that date, i.e., 20 August 2018;
- (ii) Indicated that the American Arbitration Association's Commercial Arbitration Rules in force on that date, i.e., the version effective as of 1 October 2013 (the "**Rules**"), should apply to this matter;
- (iii) Confirmed that the Rule R-4 filing requirements had been sufficiently satisfied to move these matters forward, and noted that it understood that the Claimants' quantification of damages was under active review and would be amended shortly and might be significantly higher;
- (iv) Stated that the non-signatory item had sufficiently been briefed to determine that any questions in that regard had to be decided by the Arbitral Tribunal once appointed;
- (v) Invited the Claimants to designate their party-selected arbitrator by 3 September 2018;
- (vi) Observed that any further disputes or concerns with regard to the above items were to be raised with the Arbitral Tribunal once appointed and that all other claims raised by the Claimants did not fall under this case number and would be addressed by the ICDR/AAA under separate cover shortly;
- (vii) Informed that it had added the claims contained in the Counterclaimants' Demand for Arbitration based on the Equipment Contract and the Services Agreement (i.e., the claims assigned the ICDR/AAA case number 01-18-0003-0793) as counterclaims to the ICDR/AAA case number 01-18-0002-9174 in the spirit of the 17 August 2018 administrative conference call;
- (viii) Informed that it was in the process of appointing Mr Azzali as Respondents' party-selected arbitrator;
- (ix) Invited the Parties to file an answering statement with the other side and the ICDR/AAA by 3 September 2018;
- (x) Stated that as the claim/counterclaim amounts exceeded USD 500,000 and unless the Parties agreed otherwise, the Procedures for Large, Complex Commercial Disputes should apply to this matter as described in Rules L-1 through L-3 of these procedures, in addition to any other portion of the Rules that is not in conflict with these procedures;
- (xi) Noted that it had enclosed a Checklist for Conflicts form and invited the Parties to list all the witnesses they expected to present, as well as any persons or entities with an interest in the arbitration, by 3 September 2018;

(xii) Asked the Parties to advise whether they required an additional administrative conference call to address any other questions and indicated that, if not, it would be understood that any arbitrator compensation should be advanced in equal shares by each side; and

(xiii) Invited the Parties to advise, by 3 September 2018, whether they wished to attempt to mediate this dispute and it informed that absent an agreement, it understood that either side opted out of this option.

22. On 24 August 2018, the ICDR/AAA informed the Parties that it had appointed Mr Azzali as co-arbitrator and it enclosed a copy of his (i) Notice of Appointment, (ii) biographical card containing his résumé; and (iii) Notice of Compensation Arrangements. The ICDR/AAA also noted that Mr Azzali had made a disclosure and invited the Parties to advise the ICDR/AAA of any objections to his appointment by 7 September 2018, copying the other side but not the prospective members of the Arbitral Tribunal.

23. On 31 August 2018, the Respondents submitted their Answering Statement in which, among others, they (i) rejected the consolidation of disputes other than those arising under the Equipment Contract, the Services Contract and the Guarantee (ii) rejected the inclusion in this proceeding of any non-signatories to the aforesaid contracts which provided for arbitration only between GEOG and PCSNL, on the one side, and IEC, on the other; and (iii) requested that the Arbitral Tribunal issue an award declaring its lack of jurisdiction on any claims raised by the Claimants against the BHGE Entities.

24. On 3 September 2018, the Claimants sent an email to the ICDR/AAA wherein they selected Mr Paul F. Saba as their party-appointed arbitrator.

25. That same day, the Respondents submitted their Checklist for Conflicts form, as per the ICDR/AAA letter of 20 August 2018.

26. On 5 September 2018, the Claimants sent an email to the ICDR/AAA with a list of potential witnesses for conflict purposes, as per the ICDR/AAA letter of 20 August 2018.

27. That same day, IEC submitted its Answering Statement.

28. On 10 September 2018, the ICDR/AAA informed the Parties that it had appointed Mr Paul F. Saba, Esq. as co-arbitrator, enclosed a copy of his Notice of Appointment and résumé, and announced that it would send Mr Saba's Notice of Compensation Arrangements to the Parties under separate cover shortly. The ICDR/AAA also noted that Mr Saba had made a disclosure and invited the Parties to advise the ICDR/AAA of any objections to his appointment by 24 September 2018, copying the other side but not the prospective members of the Arbitral Tribunal.

29. That same day, the ICDR/AAA informed the Parties that no objections had been filed in relation to Mr Azzali's disclosures. Moreover, it announced that Mr Azzali had communicated to the ICDR/AAA that he had no additional disclosures. Therefore, the appointment of co-arbitrator Azzali was reaffirmed.
30. On 13 September 2018, the ICDR/AAA informed the Parties that no objections had been filed in relation to Mr Saba's disclosures and, therefore, the appointment of co-arbitrator Saba was reaffirmed. Moreover, it noted that it had informed Arbitrators Azzali and Saba that the selection of the Presiding Arbitrator was expected to be completed by 24 September 2018.
31. On 21 September 2018, upon an even dated joint request by Arbitrators Azzali and Saba, the ICDR extended the deadline for selection of the Presiding Arbitrator to 11 October 20018.
32. On 9 October 2018, Arbitrators Azzali and Saba put to the Parties a short list of four candidates and asked the Parties to rank the names in order of preference.
33. On 10 October, the Parties sent their responses and Mr David Arias was ranked highest.
34. On 12 October 2018, Mr Saba sent an email to the Parties, on behalf of the co-arbitrators, indicating that both co-arbitrators had agreed on nominating Mr Arias to serve as Presiding Arbitrator of the Arbitral Tribunal, subject to confirmation pursuant to the Rules and the ICDR/AAA's practice.
35. That same day, the ICDR/AAA sent an email to Mr Arias in which it informed him that the ICDR/AAA was going to send him shortly an official invitation letter to serve as Presiding Arbitrator if he so accepted.
36. On that same day, the ICDR/AAA sent a letter to Mr Arias in which it invited him to act as Presiding Arbitrator of the Arbitral Tribunal and provided him, among others, with the instructions for acceptance.
37. On 17 October 2018, the ICDR/AAA informed the Parties that it had appointed Mr Arias as Presiding Arbitrator of the Arbitral Tribunal, enclosed a copy of his Notice of Appointment and announced that it would send Mr Arias's Notice of Compensation Arrangements to the Parties under separate cover shortly. The ICDR/AAA also noted that Mr Arias had made a disclosure and invited the Parties to advise the ICDR/AAA of any objections to his appointment by 31 October 2018, copying the other side but not the Arbitral Tribunal. Further, the ICDR/AAA invited the Parties to advise, by 19 October 2018, of their availability to hold a preliminary hearing conference call for the timeframe between 29 October 2018 and 9 November 2018.

B. First communication of the Arbitral Tribunal

38. On 18 October 2018, the Respondents sent an email to the ICDR/AAA informing about the dates and time frames on which they were available to hold the preliminary hearing conference call.
39. Later that day, the ICDR/AAA sent an email asking the Claimants whether any of the dates and time frames suggested by the Respondents suited them.
40. On 19 October 2018, the Claimants sent an email to the ICDR/AAA proposing that the preliminary hearing be held in person, in London.
41. That same day, the ICDR/AAA sent an email to the Parties and the Arbitral Tribunal stating that it deferred to the Arbitral Tribunal on the modus, date and time of the preliminary hearing and on whether the Parties should submit additional comments on the issue before making a determination.
42. On 20 October 2018, the Respondents sent an email clarifying that the availability provided in their correspondence of 18 October 2018 was for a telephone conference and that if the Arbitral Tribunal elected to have an in-person preliminary hearing they would need to revisit the dates that they had suggested. The Respondents also proposed that the Parties exchanged views on procedure and timetable with a view to presenting their points of agreement and disagreement to the Arbitral Tribunal and, only then, decide whether the costs and time of an in-person preliminary conference would be justified. Finally, the Respondents proposed that the time for the preliminary hearing conference call be confirmed without prejudice to the Claimants' request for an in-person meeting.
43. On 21 October 2018, the Claimants sent an email conveying their agreement to the Respondents' proposal that the Parties conferred among themselves and tried to reach agreement before the preliminary hearing. However, the Claimants insisted that it would be preferable to identify a time for an in-person preliminary hearing which could then be converted to a telephonic conference if the Parties were largely successful in their discussions.
44. On that same day, the Arbitral Tribunal issued its first communication to the Parties whereby it:
 - (i) Indicated that it was going to prepare, for the Parties' review and comment, a draft version of Procedural Order No. 1, which would memorialize the decisions and agreements reached during or following the preliminary hearing pursuant to Rule P-2(b) of the Rules;
 - (ii) Encouraged the Parties to liaise and agree on a number of procedural preferences and inform it of any agreement they might reach and, in the event that there were issues on which the Parties could not reach an agreement, submit the reasons why such agreement

was not possible as well as their individual preferences on the disputed issues, by 5 November 2018;

- (iii) Informed the Parties that it was not available on the dates for which both Parties had confirmed their availability for the preliminary hearing and that it would get back to them with additional possible dates; and
- (iv) Announced that once the Parties had informed it about their points of agreement and disagreement regarding their procedural preferences it would revisit whether the preliminary hearing should be held by telephone conference or in person.

45. That same day, the Arbitral Tribunal informed the ICDR/AAA that it wished to appoint an Administrative Secretary to assist in this arbitration. Specifically, it proposed the appointment of Mr Luis Capiel as Administrative Secretary of the case, attached his curriculum vitae and his declaration of independence and impartiality, and asked the ICDR/AAA to convey such proposal to the Parties.

46. On 22 October 2018, the Respondents sent an email asking the Presiding Arbitrator to include Teresa Garcia-Reyes in future exchanges and providing her email address. In addition, the Respondents requested the ICDR/AAA to confirm the application of the ICDR Guidelines for Arbitrators Concerning Exchanges of Information (the "**ICDR Guidelines**") in this arbitration.

47. On the same day, the Claimants sent an email in which they commented on the Respondents' correspondence submitted earlier that day and requested the ICDR/AAA to confirm that the ICDR Guidelines did not apply in this arbitration.

48. On 23 October 2018, the Respondents sent an email in which they commented on the Claimants' correspondence of 22 October 2018 and insisted on their position that the ICDR Guidelines applied in this arbitration.

49. On 24 October 2018, the Claimants sent an email in which they commented on the Respondents' correspondence of 23 October 2018 and reiterated their position that the ICDR Guidelines did not apply in this arbitration.

50. That same day, the ICDR/AAA sent an email to the Parties stating that it looked forward to the Parties' comments regarding the Arbitral Tribunal's first communication of 21 October 2018 by 5 November 2018 and providing remarks on the issue concerning the application of the ICDR Guidelines. In particular, the ICDR/AAA expressed the view that the ICDR Guidelines were directed to arbitrators sitting on international cases pending before the ICDR/AAA, that they came into play in international cases administered under the Rules to the extent they did not contradict them, and that they were intended to guide arbitrators who could apply them at their

discretion. The ICDR/AAA also reminded that the ICDR Guidelines provided that they would not be effective when the parties to an arbitration agreed for them not to apply. On a final note, the ICDR/AAA indicated that it had added Ms Garcia-Reyes as additional Counsel for the Respondents and asked her to confirm her address for the ICDR/AAA's record.

51. Also on that day, the ICDR/AAA informed the Arbitral Tribunal that it had conveyed to the Parties the proposal of appointing an Administrative Secretary and asked them to provide an answer by 29 October 2018.
52. On 25 October 2018, the ICDR/AAA informed the Arbitral Tribunal that the Parties had agreed to the appointment of Mr Capiel as Tribunal Secretary, and that the ICDR/AAA was going to contact Mr Capiel directly and provide him with the disclosure questionnaire.
53. Also on that day, the ICDR/AAA sent a letter to the Parties attaching a copy of the Notice of Appointment of Luis Capiel as Tribunal Secretary. In the letter, the ICDR/AAA noted that Mr Capiel had made a disclosure and invited the Parties to advise the ICDR/AAA of any objections to his appointment by 31 October 2018, copying the other side but not the Arbitral Tribunal nor the prospective Tribunal Secretary. Further, the ICDR/AAA drew attention of the Parties to Mr Capiel's hourly rate.
54. On 30 October 2018, the Arbitral Tribunal invited the Parties to advise, by 5 November 2018, about their availability to attend the preliminary hearing on one of several different dates proposed, if it were to be held by telephone conference, and on one of three dates suggested, if it were to be held in-person.
55. On 31 October 2018, the ICDR/AAA informed the Parties that no objections had been filed in response to Mr Arias' disclosure mentioned at ¶37 above and, in light thereof, it reaffirmed his appointment as Presiding Arbitrator. The ICDR/AAA also confirmed that the Parties did not file objections in response to Mr Capiel's disclosure mentioned at ¶53 above. It further took note of the Arbitral Tribunal's invitation mentioned at ¶54 above and expressed that it looked forward to hearing from the Parties about their availability for the preliminary hearing by 5 November 2018.
56. On 4 November 2018, the Respondents sent an email to the Tribunal Secretary informing about their availability to attend the preliminary hearing on the dates proposed in the invitation mentioned at ¶54 above and stating that did not copy the Claimants as they were not sure they were required to do so.
57. On 5 November 2018, the Claimants sent an email to the Arbitral Tribunal announcing that they had been working together with the Respondents on the responses to the Arbitral Tribunal's first communication of 21 October 2018 and, on behalf of the Parties, they requested a two-day extension to provide such responses, i.e., until 7 November 2018.

58. On the same day, the Arbitral Tribunal granted the Parties a two-day extension of the deadline set in its first communication of 21 October 2018. The Arbitral Tribunal also attached the Respondents' email mentioned at ¶56 above, asked the Parties to always copy the members of the Arbitral Tribunal as well as opposing counsel except as otherwise stipulated by the Arbitral Tribunal for particular situations. Further, the Arbitral Tribunal asked the Claimants to inform it by that day about their availability for the preliminary hearing.
59. On that same day, the Claimants sent an email informing the Arbitral Tribunal about their availability to attend the preliminary hearing on the dates proposed in the Arbitral Tribunal's invitation mentioned at ¶54 above.
60. Later on that same day, the Arbitral Tribunal asked the Parties to save the afternoon (London time) of 4 December 2018 as tentative date for the preliminary hearing (the "**Preliminary Hearing**") and informed them that the exact time and whether the Preliminary Hearing was to be held by telephone conference or in person (and, if so, where) would be decided by the Arbitral Tribunal in due course.
61. Also on that day, the ICDR/AAA sent an email to the Parties indicating that it would await the Arbitral Tribunal's final instructions on the time and modus of the Preliminary Hearing and would then send its official Notice of Preliminary Hearing, with dial-in details, if needed. Also, the ICDR/AAA echoed the Arbitral Tribunal's reminder mentioned at ¶58 above to always copy all participants, including also the ICDR/AAA whenever correspondence was being sent to the Arbitral Tribunal and/or the Tribunal Secretary.
62. On 6 November 2018, the Respondents sent an email in which they proposed to hold the Preliminary Hearing via telepresence and offered to provide at no cost the telepresence facilities in locations where the Respondents had them such as London, Paris, Florence, Boston and possibly Milan and New York.
63. On the same day, the Claimants sent an email indicating that they did not consider it appropriate to hold the Preliminary Hearing in separate conference rooms of the Respondents and observed that the Respondents did not have facilities available in necessary locations such as Madrid, Nigeria and Washington, D.C. Moreover, the Claimants announced that if on the following day the Parties were able to report substantial agreement on most of the procedural issues, the Claimants' suggestion to hold the Preliminary Hearing in person could be withdrawn and a telephone hearing would suffice.
64. That same day, the Respondents sent an email indicating that they might probably have facilities in Madrid, Nigeria and Washington, D.C. and that if the issue was having the Preliminary Hearing in their facilities, they were open to work with any other video system. The Respondents further

added that if for any reason an in-person hearing was not possible for any of the participants, as an alternative, they would be in favor of including that person via videoconference .

65. On 7 November 2018, the ICDR/AAA sent an email to the Parties indicating that it awaited the Arbitral Tribunal's instructions on the time and modus of the Preliminary Hearing.
66. On that same day, the Claimants sent an email to the Arbitral Tribunal conveying the Parties' agreements and points of disagreement on procedural issues and timetable, as per the Arbitral Tribunal's communication of 21 October 2018.
67. That same day, the Arbitral Tribunal informed the Parties that the Preliminary Hearing was to be held by telephone conference on 4 December 2018, at 1 p.m., New York City time.
68. Also on that day, the ICDR/AAA sent a letter to the Parties announcing that it had scheduled the Preliminary Hearing conference call for 4 December 2018, at 1 p.m., New York City time and enclosing the Notice of Preliminary Hearing containing the dial-in details to join the conference call.

C. Draft Procedural Order No. 1 and procedural timetable

69. On 28 November 2018, the Arbitral Tribunal issued a letter to the Parties attaching a draft Procedural Order No. 1 ("Draft PO1") and its Annexes I (Redfern Schedule) and II (the procedural timetable). In the letter, the Arbitral Tribunal:
 - (i) Laid out its considerations in relation to the procedural issues on which the Parties had not reached an agreement;
 - (ii) Noted that it proposed, subject to the approval of all Parties, to limit the number of documents or categories of documents that might be requested to 25;
 - (iii) Noted that it had slightly modified the procedural timetable proposed by the Parties.
 - (iv) Invited the Parties to confirm and complete certain information included in Draft PO1 and to submit any comments they might have on Draft PO1 and the suggested procedural timetable, by 3 December 2018;
 - (v) Explained that Draft PO1 and the draft procedural timetable, as well as any proposed modifications, would be discussed at the Preliminary Hearing;
 - (vi) Announced that the specific dates for each step of the arbitration, as included in the suggested procedural timetable, was also to be discussed and determined at the Preliminary Hearing; and
 - (vii) Established the agenda for the Preliminary Hearing.

70. On the same day, the ICDR/AAA informed the Parties that from that day on the counsel at the ICDR/AAA responsible for the administration of this arbitration was going to be Mr Thomas M Ventrone and it provided his contact information.
71. On 3 December 2018, the Respondents sent an email to the Arbitral Tribunal with their comments on Draft PO1 and on the suggested procedural timetable and accepting the Arbitral Tribunal's proposal to limit to 25 the number of documents or categories of documents that might be requested.
72. That same day, the Claimants sent a letter to the Arbitral Tribunal with their comments on Draft PO1 and the suggested procedural timetable, as well as their position with regard to the other items included in the Arbitral Tribunal's letter of 28 November 2018.
73. On 4 December 2018, the Respondents sent an email to the Arbitral Tribunal containing certain outstanding corporate information regarding PCSNL and GE Nigeria.

D. Preliminary Hearing and Procedural Order No. 1

74. On that same day, as scheduled, the Preliminary Hearing was held by telephone. The Parties presented their respective positions, reached certain further agreements on the provisions of Draft PO1, and agreed to confer among themselves and inform the Arbitral Tribunal of any agreements they might reach on the following outstanding issues:
 - (i) Insertion of language acknowledging the existence of proceedings pending before the U.S. District Court for the Southern District of New York at ¶¶24 and 34 of Draft PO1.
 - (ii) Amendment of wording in the penultimate sentence of ¶56 of Draft PO1.
 - (iii) Amendment of the dates agreed by the Parties in the procedural timetable as conveyed to the Arbitral Tribunal in the Claimants' email of 7 November 2018.
75. On 5 December 2018, the Arbitral Tribunal invited the Parties to inform it by 11 December 2018 of any agreements they might reach on the issues mentioned at ¶74 above and, to the extent they were not able to reach agreement, to submit their individual proposals. In addition, the Arbitral Tribunal invited the Parties to submit any further comments on the requirement stipulated in ¶56 of Draft PO1 that requested for production of categories of documents be "narrow and specific" and asked the Claimants to confirm whether they agreed to the proposed language in ¶16(iv) of Draft PO1.
76. On 11 December 2018, the Parties sent communications to the Arbitral Tribunal containing their respective comments on the issues outstanding after the Preliminary Hearing.

77. On 17 December 2018, the Arbitral Tribunal sent the Parties a letter dated 14 December 2018, to which it enclosed the final and executed Procedural Order No. 1, together with its annexes. In the letter, the Arbitral Tribunal:

- (i) Took note of the Claimants' communications of 3 December 2018 and 11 December 2018 requesting the inclusion of a reference to the court proceedings before the U.S. District Court for the Southern District of New York initiated by the Claimants' petition to compel the BHGE Entities to arbitrate, but conveyed that it considered that it was not appropriate to include a reference to these court proceedings in Procedural Order No. 1;
- (ii) Expressed that it had considered the Parties' positions with regard to the penultimate sentence of ¶56 of Draft PO1, observed that for the most part the Parties were in agreement and indicated that as regards the remaining points of disagreement, the wording adopted in Draft PO1 already reflected the Claimants' proposal and was appropriate;
- (iii) Noted that the Parties did not submit any further comments on the requirement stipulated in ¶56 of Draft PO1 that provided for production of categories of documents be "narrow and specific" and, in light thereof, confirmed that the wording in question remained that of Draft PO1;
- (iv) Took note of the Claimants' confirmation of their agreement to the content of ¶16(iv) of Draft PO1;
- (v) Took note of the Respondents' concerns about the absence of a confidentiality requirement in these proceedings and about their wish to re-emphasize the importance of the confidential provision that the Arbitral Tribunal originally included in ¶116 of Draft PO1, but it explained that absent a party agreement, it was not inclined to impose a general obligation of confidentiality in Procedural Order No. 1; and
- (vi) Clarified that any suggestions by the Parties that were not included in the final version of Procedural Order No. 1 enclosed, were rejected.

E. Procedural Order No. 2

78. On 18 January 2019, the Respondents filed their Statement of Counterclaim (the "**Statement of Counterclaim**" or "**SoCC**").

79. On 15 March 2019, the Claimants filed their Statement of Claim and Statement of Defense to Counterclaim (the "**Statement of Claim**" or "**SoC**").

80. On 29 March 2019, the Claimants sent an email to the Arbitral Tribunal enclosing their "First Request for Documents/Redfern Schedule" containing their request to the Respondents for the production of documents.

81. On 31 March 2019, the Arbitral Tribunal reminded the Parties that in accordance to ¶62 of Procedural Order No. 1, with the exception of the Redfern Schedules containing the objections to the document production requests, the Parties were not supposed to copy the Arbitral Tribunal, the Tribunal Secretary or the ICDR/AAA in their correspondence or documents exchanged during the document production phase. In light thereof, the Arbitral Tribunal made clear that the documents attached to the Claimants' email of 29 March 2019 did not form part of the arbitration file.
82. On 4 April 2019, the Claimants requested, on a joint basis with the Respondents, that the Arbitral Tribunal authorize certain adjustments in the procedural timetable associated with the document production phase.
83. On that same day, the Arbitral Tribunal authorized those adjustments.
84. On 8 April 2019, the Arbitral Tribunal issued Procedural Order No. 2, containing in its Annex I an amended procedural timetable reflecting the adjustments requested by the Parties with regard to the document production phase.

F. Procedural Orders Nos. 3 and 4

85. On 12 April 2019, the Respondents sent an email attaching Respondents' Objections to Claimants' request for document production.
86. On 13 April 2019, the Claimants submitted that pursuant to the adjustment of the disclosure schedule on 4 April 2019, they understood that the Redfern Schedules should not have been sent to the Tribunal the day before, but only after the Parties' respective replies to objections to be made on 26 April 2019, and that, accordingly, they had only sent their responses and objections to the Respondents the previous night. The Claimants requested the Arbitral Tribunal to clarify this point.
87. That same day, the Arbitral Tribunal informed the Parties that it indeed wished to be copied only in the last exchange of Redfern Schedules agreed by the Parties, i.e., the replies to objections to document production requests which would be due on 26 April 2019. It further announced that a procedural order clarifying the foregoing would be issued shortly.
88. On 15 April 2019, the Arbitral Tribunal issued Procedural Order No. 3, in which it amended ¶¶61 and 62 of Procedural Order No. 1 and added a new ¶58bis, to reflect what was indicated at ¶87 above. For ease of reference, the Arbitral Tribunal further enclosed as Annex I of Procedural Order No. 3, an amended and consolidated version of Procedural Order No. 1.
89. On that same day, the Claimants sent an email noting of certain changes in their distribution list.

90. On 23 April 2019, the Presiding Arbitrator informed the Parties that in early May 2019 he would be joining Herbert Smith Freehills, that as soon as he joined that law firm he would run a conflict check and make all necessary disclosures, and that if the Parties were in the slightest uneasy with his continuance as Presiding Arbitrator, he would offer his immediate resignation.
91. On the same day, the Tribunal Secretary informed the Parties that in early May 2019 he too would be joining Herbert Smith Freehills and that as soon as he joined that law firm he would run a conflict check and make all necessary disclosures.
92. On the same day, the ICDR/AAA sent an email to the Presiding Arbitrator and the Tribunal Secretary indicating that the ICDR/AAA had advised the Parties that there should be no further direct communication with them regarding disclosures. The ICDR/AAA further noted that all disclosures had to be submitted to it for dissemination to the Parties for comment.
93. On 26 April 2019, the Parties sent their respective Redfern Schedules containing their document production requests and responses to the other Party's objections to such requests.
94. On 10 May 2019, the Presiding Arbitrator sent a letter to the ICDR/AAA in which he made a disclosure regarding this arbitration, confirmed that he remained independent and impartial and reiterated that if any of the Parties were in the slightest uneasy with his continuance as arbitrator, he would offer his immediate resignation.
95. On the same day, the Tribunal Secretary sent a letter to the ICDR/AAA in which he made a disclosure regarding this arbitration and confirmed that he remained independent and impartial.
96. On that same day, the Presiding Arbitrator sent an email to the Parties in which he informed them that on 6 May 2019 he joined Herbert Smith Freehills, provided his new contact details, and expressed that pursuant to Rule R-17 of the Rules, he had notified the ICDR/AAA of the results of the previously announced conflict check at the captioned law firm.
97. Also that day, the Tribunal Secretary sent an email to the Parties in which he informed them that on 6 May 2019 he joined Herbert Smith Freehills, provided his new contact details, and expressed that he had notified the ICDR/AAA of the results of the previously announced conflict check at the captioned law firm.
98. On 14 May 2019, the Tribunal Secretary informed the Parties that the Arbitral Tribunal's decision on the Parties' document production requests would take longer than expected. It further informed the Parties that the Arbitral Tribunal hoped to be able to issue its decision by 28 May 2019.
99. On 28 May 2019, the ICDR/AAA informed the Presiding Arbitrator that the ICDR/AAA had shared with the Parties the disclosures mentioned at ¶¶94 and 95 above and that although no challenges

were received, the Parties requested that he provide further information and disclosure regarding the matters and legal entities involved with the Parties which were listed on his letter of 10 May 2019, as well as certain assurances, if possible by 4 June 2019.

100. On 28 May 2019, the Arbitral Tribunal issued Procedural Order No. 4, containing its decision on the Parties' respective document production requests.
101. On 4 June 2019, the Presiding Arbitrator sent a letter to the ICDR/AAA providing further information, disclosure and assurances as per the request mentioned at ¶99 above.
102. On 14 June 2019, the Presiding Arbitrator sent a letter to the ICDR/AAA in which he made an additional disclosure and provided certain assurances in connection with this case.
103. On that same day, the Tribunal Secretary sent a letter to the ICDR/AAA in which he made an additional disclosure and confirmed that he remained independent and impartial.
104. On 19 June 2019, the Presiding Arbitrator sent a letter to the ICDR/AAA in which he amended the additional disclosure contained in his letter of 14 June 2019 and provided certain assurances in connection with this case.
105. On the same day, the Tribunal Secretary sent a letter to the ICDR/AAA in which he amended the additional disclosure contained in his letter of 14 June 2019 and confirmed that he remained independent and impartial.

G. Procedural Orders Nos. 5 and 6

106. On 27 June 2019, the Respondents requested authorization to file an application for a preliminary ruling on whether one of the Claimants, Greenville, could assert claims in this arbitration against any of the Respondents.
107. On 28 June 2019, the Arbitral Tribunal invited the Claimants to comment, by 5 July 2019, on the Respondents' request for authorization of 27 June 2019.
108. On 5 July 2019, the Respondents sent an email to the Claimants, copying the Arbitral Tribunal, in which, among others, they requested production of two additional categories of documents described in a Redfern Schedule attached to the email as well as their confirmation, by 10 July 2019, on whether they would be willing to voluntarily produce these documents by 19 July 2019. The Respondents announced that in case the Claimants objected to the production of the additional categories of documents, they would ask the Arbitral Tribunal to direct the Claimants to produce such documents.

109. On the same day, the Claimants sent an email opposing the Respondents' request for authorization of 27 June 2019. Moreover, the Claimants requested leave to file an application for interim relief within 10 business days of receiving approval from the Arbitral Tribunal.
110. On 9 July 2019, the Arbitral Tribunal granted the Claimants leave to file an application for interim relief by 23 July 2019.
111. On 12 July 2019, the Claimants sent an email to the Respondents, copying the Arbitral Tribunal, in which they declined to comply with the Respondents' request for production of two additional categories of documents of 5 July 2019.
112. On 23 July 2019, the Claimants filed their application for interim relief.
113. On 25 July 2019, the Arbitral Tribunal invited the Respondents to submit their answer to the application for interim relief by 23 August 2019. Moreover, the Arbitral Tribunal invited the Respondents to clarify, by 31 July 2019, the status of the request for additional document production announced in the Respondents' email of 5 July 2019.
114. On that same day, the Arbitral Tribunal invited the Parties to inform about the premises where the evidentiary hearing was to be conducted.
115. On 31 July 2019, the Claimants sent an email stating that they would revert shortly regarding the premises of the evidentiary hearing.
116. On the same day, the Respondents sent an email in which, among others, they replied to the Claimants' email of 12 July 2019, confirmed that the Claimants did not provide any documents in connection with the Respondents' request for production of two additional categories of documents of 5 July 2019, waived their request regarding the production of one of the categories of documents and expressed that they deferred to the Arbitral Tribunal with respect to the other category of documents.
117. On 6 August 2019, the Claimants requested "*that the Tribunal accelerate the deadline within which GE/BHGE must respond to the Interim Application, re-setting that deadline for Friday August 9, 2019 so that the Tribunal will be in a position to address our application within a timeframe which will enable us to secure the essential information from GE/BHGE needed to timely and safely evacuate the gas from Train 1.*" The Claimants based their request on a letter dated 26 July 2019, sent to Greenville by the Nigerian Department of Petroleum Resources, which stated, among others, "[...] we require that you collaborate with GE and provide us within

*two (2) weeks from the date of this letter, a plan to safely evacuate the hydrocarbon (natural gas) from Train 1.*¹⁰

118. On the same day, the Arbitral Tribunal invited the Respondents to comment on the Claimants' request by 7 August 2019.
119. On 7 August 2019, the Respondents submitted their comments in opposition to the Claimants' request.
120. On 8 August 2019, the Claimants commented on the Respondents' 7 August 2019 submission.
121. On that same date, the Arbitral Tribunal denied the Claimants' 6 August 2019 request.
122. On 21 August 2019, the Respondents filed their answer to the Claimants' application for interim relief together with a 137-page compendium of explanations, technical data and documents. In the email, the Respondents explained that they "*have provided everything in their possession that the Claimants have urgently asked the Tribunal to order the Respondents to provide on an expedited basis.*"
123. On 23 August 2019, the Claimants submitted that they were in the process of reviewing the response to interim relief but had "*identified multiple inaccuracies and incomplete responses,*" and they requested an opportunity to comment.
124. On that same day, the Arbitral Tribunal invited the Claimants to submit such comments by 30 August 2019.
125. On 29 August 2019, the Claimants filed their Reply Memorandum in Support of Application for Interim Relief Reply.
126. On 31 August 2019, the Arbitral Tribunal invited the Respondents to submit their comments on the Claimants' 29 August 2019 submission by 9 September 2019.
127. On 2 September 2019, the Respondents filed their Statement of Defense to Claim and Reply on Counterclaims (the "**Statement of Defense**" or "**SoD**").
128. On 5 September 2019, the Claimants submitted a letter in which it complained about the Respondents' document production which, allegedly, had been deficient, and requested that the Arbitral Tribunal direct the Respondents to comply fully with Procedural Order No. 4.
129. On 8 September 2019, the Arbitral Tribunal invited the Respondents to comment on the Claimants' letter of 5 September 2019 by 13 September 2019.

¹⁰ Letter from the DRP submitted with the Claimants' 6 August 2019 request, ¶3.

130. On 9 September 2019, the Claimants informed the Arbitral Tribunal about the premises where the evidentiary hearing was to be conducted.
131. On the same day, the Respondents sent an email noting that as they had stated in the cover letter accompanying the USB key containing the Statement of Defense and its exhibits, the RER-10 Report of Gareth Smith had been revised with references to exhibits in the footnotes and, therefore, they were going to upload a revised version on their file transfer site together with the previous version, for comparison.
132. On the same day, the Respondents submitted their comments on the Claimants' letter of 5 September 2019¹¹ and requested that the Arbitral Tribunal dismiss the Claimants' application for interim relief.
133. On 12 September 2019, the Claimants, unprompted by the Arbitral Tribunal, sent an email providing comments on the Respondents' submission of 9 September 2019.
134. On 13 September 2019, the Respondents submitted their comments to the Claimants' complaint of 5 September 2019 about the Respondents' document production.
135. On 18 September 2019, the Claimants, unprompted by the Arbitral Tribunal, submitted a reply to the Respondents' submission of 13 September 2019.
136. On that same day, the Arbitral Tribunal invited the Respondents to comment on the Claimant's latest submission by 24 September 2019.
137. On 24 September 2019, the Respondents submitted their comments on the Claimant's 18 September 2019 submission and they complained that the Claimants' submission was unauthorized.
138. On 8 October 2019, the ICDR/AAA sent a letter to the Parties attaching the ICDR's Notice of Hearing which indicated that the evidentiary hearing in this arbitration (the "**Hearing**") was scheduled to take place in person from 9 to 20 December 2019 at the Pace University lower Manhattan Conference Center situated at 157 William Street, New York, NY 10038.
139. On 9 October 2019, the Arbitral Tribunal issued Procedural Order No. 5, rejecting the Claimants' application for interim relief and reserving the decision concerning costs to a later point in time.
140. On 17 October 2019, the Arbitral Tribunal issued Procedural Order No. 6 in which it (i) rejected the Claimants' request regarding the supposedly deficient document production by the Respondents, (ii) admitted into the file certain documents submitted by the Respondents, (iii)

¹¹ This submission sent on 9 September 2019 bears the date "September 2, 2019."

authorized the Respondents to submit an updated version of Exhibit RWS-8, and (iii) clarified that certain documents did not form part of the arbitration file.

141. On 24 October 2019, the Respondents submitted an updated version of Exhibit RWS-8.
142. On 4 November 2019, the Arbitral Tribunal invited the Parties to confer to try to reach agreements on certain issues concerning the Hearing and to inform the Arbitral Tribunal as soon as practicable. Moreover, the Arbitral Tribunal reminded the Parties about the need for them to provide during the Hearing court reporters and a qualified person to administer oaths, and it requested that the Parties inform it about the arrangements made in that regard.

H. Arbitral Tribunal's Subpoena and request for site visit

143. On 6 November 2019, the Claimants requested the Arbitral Tribunal to issue a subpoena to Chart Industries Inc. and Chart Energy and Chemicals Inc. (together, "**Chart**") in connection with the production of documents identified in a certain email from Freehill Hogan & Maher, LLP to Chart dated 23 October 2019.
144. On 7 November 2019, the Arbitral Tribunal invited the Respondents to comment by 11 November 2019 on the Claimant's request.
145. On 10 November 2019, the Claimants sent an email to the Arbitral Tribunal stating that they had offered the Respondents to jointly propose to the Arbitral Tribunal to conduct a site visit of the Rumuji Plant in early January 2020, to which the Respondents had agreed, and it asked the Arbitral Tribunal to advise about its availability to visit the site.
146. On 11 November 2019, the Respondents sent an email making clear that they had requested the Claimants' permission for their experts to visit the Rumuji site once all expert reports had been submitted and before the Hearing, but the Claimants had denied their request adducing that they would accept only an inspection by the Arbitral Tribunal jointly proposed by the Parties. The Respondents further explained that they had consented to a site visit by the Arbitral Tribunal to the extent it was conducted before the Hearing. Accordingly, the Respondents stated that they saw no value in conducting a site visit after the Hearing, but indicated that if the Arbitral Tribunal still wished to travel to Rumuji after the Hearing, it would not object to it.
147. On the same day, the Claimants commented on the clarifications provided by the Respondents earlier that day and attached the correspondence exchanged between the Parties regarding the site visit.
148. That same day, the Arbitral Tribunal expressed that it concurred with the Respondents that a site visit of the Rumuji Plant would only make sense if conducted ahead of the Hearing, in which case the time slot scheduled at that time for the Hearing would have to be used for the site visit

and the Hearing would have to be rescheduled to a later point in time. Further, the Arbitral Tribunal invited the Parties to state their positions on the foregoing, by 14 November 2019, and noted that only if all Parties unanimously agreed to conducting a site visit in the time slot scheduled for the Hearing and to rescheduling the Hearing to a later point in time, the Arbitral Tribunal would consider having a site visit and, but that, absent unanimity, the procedural calendar would remain unchanged.

149. Also on that day, the Respondents submitted their comments on the Claimant's request that the Arbitral Tribunal issue a subpoena. The Respondents stated, among others, that they did not object to Chart providing to the Claimants –along with the Respondents– certain documents whose production the Claimants' had requested, and that Chart had been previously informed of the Respondents' consent to the production.
150. On the same day, the Arbitral Tribunal issued the subpoena as per the Parties' agreement.
151. On 14 November 2019, the Respondents informed the Arbitral Tribunal that they did not believe the Hearing should be rescheduled to accommodate a site visit by the Arbitral Tribunal and insisted that the Respondents had only consented to the Claimants' proposal for the Arbitral Tribunal to visit the site because it was the only basis on which the Claimants would grant their experts access to the site.
152. On the same day, the Claimants sent an email to the Arbitral Tribunal indicating that they were in receipt of the Respondents' position regarding the site visit and that, in light of the Arbitral Tribunal's instruction concerning the issue at hand, they understood that the Respondents' answer resolved the question.
153. On 15 November 2019, the Arbitral Tribunal informed the Parties that the pre-hearing conference scheduled on 27 November 2019 was to be held at 12:30 p.m. New York time and that an agenda, as well as dial-in details, were to be circulated once the Parties had submitted their notification of witnesses and experts for cross-examination and their comments on certain issues concerning the Hearing as per the Arbitral Tribunal's email of 4 November 2019.
154. On 16 November 2019, the Claimants filed their Statement of Reply.
155. On that same day, the Arbitral Tribunal sent an email to the Claimants regarding certain issues with the Claimants' exhibits and the Claimants replied to the said email.

I. Pre-hearing conference

156. On 19 November 2019, the Claimants informed the Arbitral Tribunal about the court reporting services agreed by the Parties for the Hearing.

157. On 21 November 2019, the Claimants sent an email to the Arbitral Tribunal conveying the Parties' agreements and points of disagreement on certain issues concerning the Hearing as per the Arbitral Tribunal's email of 4 November 2019.
158. That same day, the Respondents commented on the Claimants' correspondence of earlier that day and provided the order in which they wished their witnesses be examined.
159. On the same day, the Respondents sent an email indicating that the Claimants had consented that they file further documentary evidence before the cut-off date and attached such exhibits.
160. On that same day, the Claimants sent an email indicating that the Respondents had consented that they file further documentary evidence before the cut-off date and attached an exhibit.
161. On 22 November 2019, several emails were exchanged between the Arbitral Tribunal and the Parties regarding certain issues with the Claimants' exhibits. The Arbitral Tribunal also requested the Parties to provide updated lists of exhibits.
162. On 25 November 2019, the Arbitral Tribunal issued a letter to the Parties (the "**Hearing Directions' Letter**") in which it:
 - (i) Took note of the issues concerning the Hearing on which there was an agreement among the Parties;
 - (ii) Gave directions on the issues where the Parties could not reach an agreement;
 - (iii) Invited the Parties to submit by 3 December 2019 the list of persons (legal teams and other Party representatives) who would be attending the Hearing and a joint proposal for a tentative hearing schedule;
 - (iv) Reminded that the pre-hearing conference was scheduled to take place on 27 November 2019 at 12:30 p.m. New York time;
 - (v) Shared the dial-in details to join the pre-hearing conference; and
 - (vi) Provided an agenda for the pre-hearing conference.
163. On 27 November 2019, the Respondents provided updated lists of exhibits as per the Arbitral Tribunal's emails of 22 November 2019.
164. On that same day, as scheduled, the pre-hearing conference was held by telephone.
165. Later on that same day, the Arbitral Tribunal:
 - (i) Took note of the Claimants' confirmation, given at the pre-hearing conference, that they would cross-examine the Respondents' fact witness in the order set out at ¶8 of the Arbitral Tribunal's 25 November 2019 letter;

- (ii) Emphasized, as it had expressed during the pre-hearing conference, that the requirement that witnesses be heard under oath was not included in the Arbitral Tribunal's original Draft PO1, but was included in ¶99 of Procedural Order No. 1 at the Claimants' request and in accordance to Rule R-27 of the Rules and, therefore, it invited the Parties to inform it whether they wished to amend ¶99 of Procedural Order No.1 by mutual agreement to strike such requirement;
- (iii) Invited the Parties to inform it whether they wished to amend ¶54 of Procedural Order No. 1 by mutual agreement to stipulate that if a Party or its experts intend to use demonstrative exhibits for their opening statements/introductory presentations, that Party had to submit such exhibits to the Arbitral Tribunal, the Tribunal Secretary and the opposing counsel on the eve of the day on which such exhibits were to be used; and
- (iv) Reminded the Parties that, as per ¶¶34 to 36 of the Arbitral Tribunal's 25 November 2019 letter, they were to submit, by 3 December 2019, the list of persons who would be attending the Hearing; as well as a joint proposal for a tentative hearing schedule.

J. The Hearing

- 166. On 2 December 2019, the Claimants sent an email to the Arbitral Tribunal regarding certain corrections to their exhibits.
- 167. That same day, the Claimants sent a letter to the Arbitral Tribunal announcing that they would use a 3D model of the Rumuji LNG Project at the Hearing and that their witness, Werner Pirijns, would bring to the Hearing certain sections of the MRC¹² Motor Electrical Cables and the Transformer Cables, as discussed in ¶4.37 of his second witness statement (Exhibit CWS-12). Moreover, the Claimants informed the Arbitral Tribunal that they had decided not to cross-examine the Respondents' fact witness Mr Alessandro Bresciani.
- 168. On 3 December 2019, the Respondents sent an email noting that ¶75 of Procedural Order No. 1 vested the Arbitral Tribunal with an independent right to require the appearance of witnesses even when the opposing Party had waived the right of examination and requesting the Arbitral Tribunal's guidance as to whether the Respondents could release Mr Bresciani from attending the Hearing.
- 169. On that same day, the Arbitral Tribunal released Mr Bresciani from attending the Hearing.
- 170. That same day, the Arbitral Tribunal noted that some of the witness statements and expert reports in the lists of exhibits attached to the Claimants' email of 2 December 2019 were

¹² Mixed Refrigerant Compressor ("MRC").

numbered incorrectly and, in light of that, it invited the Claimants to review those lists and submit corrected versions.

171. Also on that day, the Respondents provided the list of persons on their side who were attending the Hearing, reported that they had discussed a tentative hearing schedule with the Claimants and were awaiting for their comments in that regard. Moreover, the Respondents informed the Arbitral Tribunal about certain obstacles preventing the timely issuance of a visa for their fact witness Mr Ali Kassem to enter the USA to attend the Hearing and about the possibility that Mr Kassem be heard at the Hearing by videoconference.
172. Later on that same day, the Claimants provided the list of persons who were attending the Hearing on their side and informed the Arbitral Tribunal:
 - (i) About the Parties' agreements regarding the tentative hearing schedule, which was subject to the caveat that depending on the length of examinations, the witnesses could end up appearing a little earlier or later;
 - (ii) That the Parties had agreed that the demonstratives to be used by the expert witnesses were going to be exchanged at 8 p.m., on the night before the presentations, but the demonstratives to be used in openings statements were not to be exchanged by the Parties the evening before; and
 - (iii) That with regard to ¶99 of Procedural Order No. 1, the Parties had agreed that fact witnesses would be sworn to testify under oath, although not a religious one.
173. On 4 December 2019, the Arbitral Tribunal invited the Claimants to comment by that day, on the issue raised by the Respondents in their email of 3 December 2019 regarding the difficulties in timely obtaining a US visa for Mr Kassem and the possibility that Mr Kassem be heard at the Hearing by videoconference.
174. That same day, the Arbitral Tribunal noted that the Parties had not reached an agreement to strike the requirement in ¶99 of Procedural Order No. 1 that witnesses be heard under oath and that they had agreed that the oath was to be non-religious. Further, the Arbitral Tribunal reminded that, as per the said ¶99 of Procedural Order No. 1, the Parties were to provide a duly qualified person to administer the oaths at the Hearing.
175. Also on that day, the Arbitral Tribunal took note of the Parties' joint tentative schedule for the Hearing. The Arbitral Tribunal further reminded the Parties that the daily schedule would be from 9 a.m. to 5 p.m., with a 1-hour break for lunch and other shorter breaks when necessary, and that, unless the Arbitral Tribunal finally took up less time than it had allotted for itself, each side's total time for opening statements, direct examinations, presentations in lieu of direct

examinations, cross-examinations, re-direct examinations and re-cross examinations would be limited to 22 hours.

176. That day, the Respondents sent an email to the Claimants, copying the Arbitral Tribunal, in which they asked the Claimants to inform them of the affiliations of each of the persons listed to attend the Hearing on their side.
177. Later that day, the Claimants sent an email to the Respondents, copying the Arbitral Tribunal, in which they informed them of the affiliations of each of those persons.
178. Also on that day, the Claimants commented on the issue raised by the Respondents regarding the difficulties in timely obtaining a US visa for Mr Kassem and the possibility that Mr Kassem be heard at the Hearing by videoconference.
179. On 5 December 2019, the Arbitral Tribunal informed the Parties that it concurred with the Claimants' preference for Mr Kassem testifying in person and it further encouraged the Respondents to continue attempting to expedite the process to have Mr Kassem's visa issued promptly. Nevertheless, the Arbitral Tribunal added that in the event that despite the Respondents' efforts Mr Kassem's visa were not to be obtained in time, it would consider the situation as an exceptional circumstance and, therefore, it would permit Mr Kassem being heard by videoconference pursuant to ¶74 of Procedural Order No. 1. Finally, the Arbitral Tribunal invited the Parties to confer among themselves about the arrangements that might be needed in case that Mr Kassem finally were to be heard by videoconference.
180. On that same day, the Respondents updated the Arbitral Tribunal on the actions being taken to expedite the issuance of Mr Kassem's visa and announced that they had begun investigating the possibility of a video link to hear the witness by videoconference and that they would confer with counsel for the Claimants in that regard.
181. On 5 and 6 December 2019, the Claimants and the members of the Arbitral Tribunal exchanged emails regarding certain details of the court reporting services hired for the Hearing.
182. Also on these days, the arbitrators expressed their preference on certain aspects regarding the court reporting services hired for the Hearing.
183. On 6 December 2019, the Respondents updated the Arbitral Tribunal on the status of Mr Kassem's visa application and informed the Arbitral Tribunal about the contingency arrangements they were making in case that Mr Kassem finally were to be heard by videoconference.
184. On 8 December 2019, the Claimants provided revised lists of exhibits as per the Arbitral Tribunal's email of 3 December 2019.

185. From 9 to 20 December 2019, the Hearing was held in New York City.
186. After each Hearing day, the court reporter, Ms Linda Russell, circulated that day's transcript.
187. Also after each Hearing day, except the first and the last day, the Tribunal Secretary sent an email to the Parties reporting the time used by each side at the Hearing and the time remaining for each side.
188. On 9 December 2019, the Respondents sent an email attaching their opening statement presentation and Exhibit R-314.¹³
189. On 11 December 2019, the Respondents sent an email attaching the presentation of Mr John Middleton for his testimony on the following day.
190. On that same day, the Claimants sent an email attaching the presentation of Mr Scott Wright for his testimony on the following day.
191. On that same day, the Respondents sent an email attaching a shorter version of the presentation of Mr Middleton.
192. On 12 December 2019, the Claimants submitted their demonstrative exhibits C-D20 to C-D29 of that day and the day before.
193. On that same day, the Respondents confirmed that Mr Kassem would have to be heard by videoconference.¹⁴
194. On 15 December 2019, the Respondents sent an email attaching the presentation of Mr Gareth Smith for his testimony on the following day.
195. On that same day, the Claimants sent an email attaching the presentation of Mr Peter Lumley for his testimony on the following day.
196. On 16 December 2019, the Claimants sent emails attaching the presentations of Messrs Brian Dunagan and Robert Caligiuri for their testimonies on the following day.
197. Also on that day, the Respondents sent emails attaching the presentations of Messrs Stephen Linwood, Chris Googan, Kevin Slater and Alan Borrowman for their testimonies on the following day.
198. On 17 December 2019, the Respondents sent an email attaching the presentation of Mr Jeff Blinkhorn for his testimony on the following day.

¹³ To which submission the Claimants did not object (see Transcript of the Hearing held in New York City between 9 and 20 December 2020 ("Tr.") Day 1, 188:5-20).

¹⁴ See Tr. Day 4, 195:22-25.

199. On that same day, the Claimants sent an email attaching the presentation of Mr John Lancaster for his testimony on the following day.
200. On 18 December 2019, the Claimants attached their demonstrative exhibits C-D30 to C-D32 from Mr Smith's cross-examination of 16 December 2019.
201. Also on that same day, the Arbitral Tribunal requested the Parties to arrange, if possible, for Mr Lapuerta and Ms Linnell to be available to give testimony on the following day in case that turned out to be possible without departing from the principle that all experts on a given issue were to be heard on the same day.
202. On that same day, the Claimants sent emails attaching the presentations of Ms Bente Villadsen and Mr Matthew Will for their testimonies on the following day and confirming Mr Lapuerta's availability to give testimony on the following day, if required.
203. On that same day, the Respondents sent emails attaching the presentation of Mr Chris Hillier for his testimony on the following day and confirming Ms Linnell's availability to give testimony on the following day, if required.
204. During the Hearing, it was agreed that an additional hearing for oral closing arguments would be held in Milan, at the premises of the Milan Chamber of Arbitration, on 21 January 2020, from 9:00 a.m. to 5:00 p.m. CET¹⁵ (the "**Additional Hearing**").
205. On 19 December 2019, the Arbitral Tribunal invited the Parties to inform it about the number of persons that were attending the Additional Hearing and whether breakout rooms would be needed. The Arbitral Tribunal further informed the Parties that, unless agreed otherwise by them, real-time transcription would not be required for the Additional Hearing, but audio was to be recorded and subsequently transcribed. Finally, the Arbitral Tribunal provided the contact details of the agency which the Milan Chamber of Arbitration used for audio-recording and transcription and attached to the email a list of hotels with which the Milan Chamber of Arbitration had agreements for preferential rates.
206. On that same day, the Respondents sent an email informing the Arbitral Tribunal of the number of persons that would attend the Additional Hearing on their behalf and expressing that they would require a small break-out room and that they did not need real-time transcription.
207. That same day, the Respondents sent an email attaching the presentation of Ms Kay Linnell for her testimony on the following day.

¹⁵ Tr. Day 5, 5:6-7:5, 144:17-146:17; T. Day 6, 124:12-127:17, Tr. Day 8, 4:2-6:8; Tr. Day 9, 189:14-190:4; Tr. Day 10, 223:13-24.

208. Also on the same day, the Claimants sent an email attaching the presentation of Mr Carlos Lapuerta and an errata sheet for his testimony on the following day.

K. Procedural Order No. 7

209. On 23 December 2019, the Arbitral Tribunal reminded the Parties about the date and place of the Additional Hearing and it noted that it would circulate further details in due course, including the hearing schedule and the list of questions it wished for the Parties to address in their oral closing arguments.

210. Also on that day, the Arbitral Tribunal asked the Parties to submit a jointly-agreed final consolidated version of the Hearing transcripts, if possible, by 7 January 2020.

211. On that same day, the Claimants informed the Arbitral Tribunal about the number of persons that would attend the Additional Hearing on their behalf and that they wished to have the Additional Hearing be transcribed with LiveNote. They further asked for the Arbitral Tribunal's confirmation that the transcription services had to be arranged by the Parties, with costs shared subject to an allocation of costs in the final award.

212. That same day, the Arbitral Tribunal confirmed that the recording and transcription services for the Additional Hearing were to be arranged by the Parties and that the cost of such services was to be advanced by them in equal shares, without prejudice to the decision of the Arbitral Tribunal on the allocation of the costs of the arbitration. Moreover, it enclosed the email referred to at ¶205 above and noted that Mr Azzali had received information that the agency therein mentioned also offered LiveNote transcription services.

213. On 29 December 2019, the Arbitral Tribunal sent an email to the Parties noting that it had been informed that the Respondents had not yet paid upon the last request for a deposit made by the ICDR/AAA and expressing that, unless full payment of the deposits for arbitrator compensation was received by 10 January 2020, the proceedings would be suspended pursuant to Rule R-57(e) of the Rules and that such suspension might entail a postponement or cancellation of the Additional Hearing.

214. On 30 December 2019, the Respondents informed the Arbitral Tribunal that the payment of the last request for a deposit made by the ICDR/AAA was in process at the time of the Hearing, that it could be caught in the year end payment cycle and that they would provide at their earliest opportunity the payment date.

215. On 30 December 2019, the Respondents provided an update on the payment of the last request for a deposit made by the ICDR/AAA.

- 216. On 31 December 2019, the Tribunal Secretary requested the Claimants to provide by email a soft copy of the opening presentation they used at the Hearing.
- 217. On 2 January 2020, the Claimants confirmed that a soft copy of their opening presentation binder was contained on the USB drive that also contained the witness cross-examination bundles, which they provided on the Hearing.
- 218. Also on that day, the ICDR/AAA sent a letter to the Parties to which it enclosed an ICDR's Notice of Hearing with the details of the Additional Hearing.
- 219. On 3 January 2019, the Tribunal Secretary and the Claimants exchanged emails on where Mr Pirijns's video played at the beginning of Claimants' opening presentation could be found.
- 220. That day, the Respondents informed the Arbitral Tribunal that the payment of the last request for deposit made by the ICDR/AAA had been initiated the day before and that it would take approximately two business days for the funds to reach the ICDR/AAA's account.
- 221. Also on that day, the ICDR/AAA sent an email indicating that it would monitor the payments received by it and revert upon receipt of the Respondents' payment.
- 222. On 6 January 2020, the Arbitral Tribunal issued Procedural Order No. 7, in which it:
 - (i) Convened the Parties' counsel to the Additional Hearing;
 - (ii) Allocated the time of the Additional Hearing;
 - (iii) Invited the Parties to address at the Additional Hearing the questions set out in the non-exhaustive list attached as Annex I of Procedural Order No. 7; and
 - (iv) Ordered that ¶105 of Procedural Order No. 1, on recording and transcription, was to apply to the Additional Hearing.

L. The Additional Hearing

- 223. On 7 January 2020, the Claimants expressed that it was their understanding that other Claimants' representatives, aside from counsel, could attend the Additional Hearing, and asked for the Arbitral Tribunal's confirmation on whether their understanding was correct.
- 224. On that same day, the ICDR/AAA confirmed receipt of the Respondents' pending payment.
- 225. Also on that day, the Arbitral Tribunal confirmed that the Claimants' understanding on their email of 7 January 2020 was correct.
- 226. On 8 January 2019, the Arbitral Tribunal asked the Parties to inform it about the status of the jointly-agreed final consolidated version of the Hearing transcripts and of the date on which they estimated it would be provided, and kindly invited the Parties to submit them by 14 January 2020.

227. On that same day, the Arbitral Tribunal informed the Parties about the exact location of the Additional Hearing, provided certain instructions in relation to it, and invited the Parties to inform it of the final number of attendees and their names by 16 January 2020.
228. Also on that day, the Claimants informed the Arbitral Tribunal that the Parties intended to submit the jointly-agreed final consolidated version of the Hearing transcripts by 13 January 2020.
229. On 13 January 2020, the Claimants filed a table containing the Hearing transcript corrections to which the Parties had agreed.
230. On 14 January 2020, the Arbitral Tribunal reminded the Parties about its request that they provide a final consolidated version of the Hearing transcripts as earliest as possible.
231. On 15 January 2020, the Claimants informed that the Hearing transcripts would be submitted on the following day.
232. On 16 January 2020, the Claimants submitted the final consolidated version of the Hearing transcripts for the first five days of the Hearing and announced that they expected to submit the transcripts for the second week of the Hearing on the following day at the latest.
233. On that same day, the Respondents informed the Arbitral Tribunal of the names of the persons who were attending the Additional Hearing on their side.
234. On 17 January 2020, the Tribunal Secretary reminded the Parties to inform the Arbitral Tribunal, at their earliest convenience, about the name of the services provider(s) and of the services requested for the Additional Hearing and asked them to direct the services provider(s) to get in touch with Mr Azzali or with the Tribunal Secretary. The Tribunal Secretary also provided certain information regarding the Additional Hearing venue and reminded the Claimants of the Arbitral Tribunal's request to be informed of the final number of attendees on their side and their names.
235. That same day, the Claimants submitted small sized corrected versions of the transcripts for the second week of the Hearing and announced that the regular/full size versions of those transcripts would be provided as soon as they were available.
236. Also on that day, the Claimants submitted Exhibit C-1176 (Brattle's BR-143U) and explained that an unnumbered version of the same exact exhibit had been provided to the Respondents by email during the Hearing.¹⁶
237. On 19 January 2020, the Respondents informed the Arbitral Tribunal about the court reporting and related services hired for the Additional Hearing.

¹⁶ See Tr. Day 10, 109:8-111:10.

238. Also on that day, the Claimants informed the Arbitral Tribunal of the names of the persons who would be attending the Additional Hearing on their side.
239. On 20 January 2020, the Claimants submitted the final consolidated version of the transcripts for the second week of the Hearing.
240. On 21 January 2020, the Additional Hearing took place in Milan, Italy.
241. Later that day, the Claimant's sent an email to the Respondents, copying the Arbitral Tribunal, attaching certain invoices which had been discussed at the Additional Hearing.¹⁷
242. On 22 January 2020, the Arbitral Tribunal reminded the Parties of the decisions taken at the end of the Additional Hearing. Specifically, the Arbitral Tribunal mentioned that
 - (i) There would be two rounds of post-hearing briefs to be filed simultaneously.
 - (ii) The first post-hearing briefs should not exceed 75 pages and was to be submitted by 3 March 2020.
 - (iii) The second post-hearing briefs should be limited in scope to the issues addressed by the opposing parties in their first post-hearing briefs, should not exceed 40 pages and was to be submitted by 24 March 2020.
 - (iv) The Parties should attempt to agree on a joint proposal regarding the scope and the date of filing of the cost submissions and were to inform the Arbitral Tribunal of such joint proposal or of their failure to reach an agreement by 4 February 2020.
 - (v) The Parties would be allowed to send their post-hearing briefs and cost submissions to the Arbitral Tribunal, the ICDR/AAA and the Tribunal Secretary only, who would forward them to the opposing Parties.
243. On 23 January 2020, in response to the Respondents' inquiry made at the end of the Additional Hearing concerning the Arbitral Tribunal's cost decision, the Arbitral Tribunal informed the Parties that it was inclined to apply the costs-follow-the-event rule, albeit with some flexibility to account for any other aspects it might deem relevant. Nevertheless, the Arbitral Tribunal clarified that the foregoing should not be construed as a limitation to its discretion under Rule R-47(c) of the Rules to decide on costs in any way it determined appropriate, including the application of a different cost allocation rule, once it had had opportunity to deliberate.
244. On 26 January 2020, the court reporter, Ms Yvonne Vanvi, circulated the transcripts of the Additional Hearing.

¹⁷ See below, ¶¶256 *et seq.*

M. First post-hearing briefs, Procedural Orders Nos. 8 and 9

245. On 4 February 2020, the Claimants informed the Arbitral Tribunal that the Parties were working towards an agreement regarding the timing and procedures for the cost submissions and asked that the deadline to submit their views on the issue be extended to 7 February 2020.
246. On the same day, the Arbitral Tribunal granted the said request.
247. On 7 February 2020, the Claimants requested, on behalf of the Parties, a few further days to provide their views regarding the timing and procedure for the cost submissions.
248. On that same day, the Arbitral Tribunal granted the said request.
249. On 18 February 2020, the Claimants sent an email to the Arbitral Tribunal conveying the agreements reached by the Parties on the timing and procedure for the cost submissions.
250. On 3 March 2020, the Respondents filed their first post-hearing brief (“**Respondents’ First Post-Hearing Brief**” or “**Rs’ PHB1**”)
251. Also on that day, the Claimants filed their first post-hearing brief (“**Claimants’ First Post-Hearing Brief**” or “**Cs’ PHB1**”).
252. On 4 March 2020, the Tribunal Secretary forwarded the Parties’ First Post-Hearing Briefs to the opposing Parties.
253. On 12 March 2020, the Arbitral Tribunal issued Procedural Order No. 8, in which it took note of and accepted the Parties’ agreements on the timing and procedure for the cost submissions.
254. On 20 March 2020, the Claimants sent an email to the Arbitral Tribunal stating that the Respondents had requested their consent to a two-week adjournment on the submission of the second post-hearing briefs, in view of the situation resulting from the Covid-19 pandemic. The Claimants consented to the Respondents’ request.
255. On 22 March 2020, the Arbitral Tribunal sent an email to the Parties in which it took note of the Claimants’ correspondence of 20 March 2020 and granted the Parties a two-week adjournment of the second post-hearing briefs. The Arbitral Tribunal also postponed subsequent deadlines accordingly.
256. On 27 March 2020, the Arbitral Tribunal sent an email to the Parties in reference to the Claimants’ new claim for additional damages for take-or-pay costs as per ¶235 (i) of the Claimants’ First Post-Hearing Brief and to the Respondents’ objection in ¶203 and their submissions in ¶¶209-210 of the Respondents’ First Post-Hearing Brief, and informed them that if, after consideration, the Arbitral Tribunal were to find the said new claim to be admissible, it would invite further submissions from the Parties.

257. On 6 April 2020, the Claimants sent an email to the Arbitral Tribunal in which they stated:

- (i) That despite TOTAL's threat to imminently draw down the security, such draw down had not occurred;
- (ii) That, as a result of the above, they agreed that the award of a sum certain on their take-or-pay claim would still be premature;
- (iii) That they sought to avoid anything that might delay issuance of an award on the claims that, as of that date, were ripe for decision;
- (iv) That they had agreed to withdraw without prejudice their request for relief in Paragraph 235 (i) of Claimants' First Post-Hearing Brief as not yet ripe, preserving the right to renew it if a take or pay payment later had to be made; and
- (v) That they asked that the Arbitral Tribunal (i) issue a partial final award –designated as such– on all of Claimants' claims that, as of that date, were ripe for decision, as reflected in all but ¶235 (i) of the request for relief in the Claimants' first post-hearing brief, and on the Respondents' counterclaims, and (ii) retain jurisdiction for a period of up to 12 months, subject to either Party's request for relief, to resolve any disputes that might thereafter ripen.

258. On that same day, the Arbitral Tribunal stayed all pending deadlines until further notice and invited the Respondents to comment, by 14 April 2020, on the Claimants' correspondence submitted earlier that day.

259. On 14 April 2020, the Respondents submitted their comments to the Claimants' email of 6 April 2020.

260. On 15 April 2020, the Arbitral Tribunal invited the Claimants to submit their comments to the Respondents' submission of 14 April 2020 by 20 April 2020, and, in turn, it also invited the Respondents to reply by 24 April 2020.

261. On 20 April 2020, the Claimants submitted their comments to the Respondents' submission of 14 April 2020.

262. On 24 April 2020, the Respondents submitted their reply to the Claimants' submission of 20 April 2020.

263. On 3 May 2020, the Arbitral Tribunal issued Procedural Order No. 9, in which it decided, among others:

- (i) To not give its consent to the submission of the new claim made in ¶235(i) of the Claimants' First Post-Hearing Brief;

- (ii) To deny the Claimants' request that the Arbitral Tribunal retain jurisdiction for a period of up to 12 months, subject to either party's request for relief, to resolve any disputes that may hereafter ripen;
- (iii) To set new deadlines for the second round of post-hearing briefs and cost submissions.

N. Second post-hearing briefs and cost submissions

- 264. On 8 May 2020, the Respondents filed the Respondents' Second Post-Hearing Brief.
- 265. That same day, the Claimants filed their Reply to Respondents' First Post-Hearing Brief ("Claimants' Second Post-Hearing Brief" or "Cs' PHB2").
- 266. On 9 May 2020, the Tribunal Secretary forwarded the Parties' Second Post-Hearing Briefs to the opposing Parties.
- 267. On 29 May 2020, the Respondents filed their Cost Submission ("Respondents' Cost Submission").
- 268. That same day, the Claimants filed their Submission on Fees and Costs ("Claimants' Cost Submission").
- 269. On 30 May 2020, the Tribunal Secretary forwarded the Parties' Cost Submissions to the opposing Parties.
- 270. On 31 May 2020, the Respondents sent an email to the Tribunal Secretary requesting that the breakdown referred to at ¶20 of the Claimants' Cost Submission be released to the Respondents at the earliest.
- 271. That same day, the Tribunal Secretary replied to the Respondents confirming that the only document received with the Claimants' email of 29 May 2020 was the Claimants' Cost Submission.
- 272. On 1 June 2020, the Respondents sought leave from the Arbitral Tribunal in order to address the issues that arose from the Claimants' Cost Submission.
- 273. That same day, the Parties were granted leave to comment on each other's cost submissions by 5 June 2020.
- 274. On 5 June 2020, the Respondents filed their Comments on Cost Submission.
- 275. That same day, the Claimants filed their Response to Respondents' Cost Submission.
- 276. On 6 June 2020, the Tribunal Secretary forwarded the Parties' 5 June 2020 submissions to the opposing Parties.

O. Final submissions and closing of the Hearing

277. On 9 July 2020, the Claimants sent an email to the Arbitral Tribunal stating that both the Claimants and the Respondents understood that the 60-day period established in ¶116 of Procedural Order No. 1 to render the award would have begun to run upon the Parties' submission of their Second Post-Hearing Briefs on 8 May 2020 and that the Parties requested that the Tribunal provide them with guidance regarding the anticipated award date.
278. On that same day, the Respondents confirmed the joint request.
279. On 10 July 2020, the Arbitral Tribunal informed the Parties that its deliberations were ongoing and that it had thus far intentionally refrained from declaring the proceedings closed since it did not rule out inviting the Parties to make further submissions. The Arbitral Tribunal added that it understood that the 60-day period established in ¶116 of Procedural Order No. 1 had not yet begun to run. But it informed the Parties that it anticipated that it would soon be in a position to either invite the Parties to make further submissions or to declare the hearing closed as per Rule R-39(b) and, if so, it did not anticipate that it would require more than the 60 days foreseen to issue a final award.
280. On 28 July 2020, the Arbitral Tribunal issued Procedural Order No. 10, in which it invited the Parties to make most brief submissions, by 30 July 2020, with regard to two specific issues.
281. On 30 July 2020, the Respondent submitted their Answers to Procedural Order No. 10, together with three documents.
282. On the same day, the Claimants submitted their Response to Procedural Order No. 10.
283. On 31 July 2020, the Arbitral Tribunal declared the hearing closed as of 30 July 2020, pursuant to Rule R-39(b) of the Rules. Moreover, as per the Parties' Agreements reflected in ¶116 of Procedural Order No. 1, it extended the period for rendering the final award to 60 days from the closing of the hearing. Finally, it informed the Parties that while it did not anticipate that further extensions would be necessary, it did not rule them out.
284. On 26 September 2020, as per the Parties' agreements reflected in ¶116 of Procedural Order No. 1, the Arbitral Tribunal (i) informed the Parties that it anticipated to render the final award by 30 October 2020 and, thus, it (ii) extended the period for rendering the final award to 30 October 2020.

VIII. FACTUAL BACKGROUND

285. The dispute between the Parties arises from (i) a contract for the sale of two fully-modular small scale LNG production plants or trains ("Train 1" and "Train 2," and together, the "Trains") for

use in the LNG plant in Nigeria, located in Rumuji, Rivers State (the “**Rumuji Plant**”),¹⁸ for a Contract Price of 95,000,000.00 USD,¹⁹ entered into between GEOG and IEC on 13 September 2014 (previously defined as the “Equipment Contract”),²⁰ (ii) a services agreement entered into the same day between GE Nigeria and IEC, for the purpose of on-site supervision in Rumuji, Nigeria, of the installation, start-up, commissioning and testing of the Trains, as well as the training of IEC employees to ensure that the Trains were properly installed and functioned to their designed and warranted capacities (previously defined as the “Services Agreement”),²¹ and (iii) an agreement of the same date by which GEOG guaranteed to IEC the performance of GE Nigeria’s obligations under the Services Contract (previously defined as the “Guarantee”).²²

286. IEC is a privately held company that is ultimately majority-owned by Mr Eddy Van den Broeke.²³ IEC holds, indirectly, 100 percent of the outstanding shares of Greenville.²⁴ Greenville is a Nigerian company that operates the group’s LNG business in Nigeria.²⁵
287. Up until 2015, the IEC group’s principal business had been bitumen in West Africa.²⁶ In 2014, IEC decided to sell the business, and to dedicate the sales proceeds to the purchase and installation of a plant that would liquefy natural gas arriving by pipeline at its site in Rumuji.²⁷ IEC would install local LNG storage units at the customer sites,²⁸ and the LNG would be delivered to the customers in specialized trucks.²⁹ The customers could use the LNG largely as a substitute for diesel fuel.³⁰
288. GEOG was an affiliated company of the General Electric Company and it operated under the umbrella of “GE Oil & Gas.”³¹ GE Nigeria is an affiliate of GEOG.³²
289. In 2013, GEOG acquired the assets of the Salof Companies, a designer and manufacturer of small-scale LNG plants based in Schertz, Texas.³³ Salof had a long history manufacturing fully-

¹⁸ SoC, ¶16.

¹⁹ Equipment Contract, Clause 7.1.

²⁰ Equipment Contract, Recitals.

²¹ Exhibit C-2, Recitals.

²² Exhibit C-3, Recitals.

²³ SoC, ¶13.

²⁴ SoC, ¶14.

²⁵ SoC, ¶14.

²⁶ SoC, ¶42.

²⁷ Exhibit CER-4, ¶24.

²⁸ Exhibit CER-4, ¶¶5, 20.

²⁹ Exhibit CER-4, ¶5.

³⁰ Exhibit CER-4, ¶5.

³¹ SoCC, ¶17.

³² SoCC, ¶3.

³³ SoCC, ¶17; SoC, ¶56.

modularized, skid-based CO₂ liquefaction units, and had been working with Shell since 2011 to develop a fully-modularized, skid-based, 0.25 MTPA,³⁴ LNG liquefaction plant.³⁵

290. In July 2017, the General Electric Company and Baker Hughes, Inc. merged and contributed their respective oil and gas businesses (including GEOG) to the newly formed BHGE LLC,³⁶ which is held by the holding company BHGE.³⁷

291. The parties met for the first time when Mr van den Broeke and other representatives of IEC went to China in August 2014 to investigate the purchase of small scale LNG plants and met Mr David Gordon and other representatives of GEOG from Schertz, Texas, where GEOG built small scale LNG plants.³⁸ The GEOG representatives informed IEC that they had a small scale LNG plant in the Schertz factory that had been produced for Shell for its Canadian Green Corridor project in Northern Canada (“**Train 3**”).³⁹ Shell had discontinued the Canadian Green Corridor project and no longer appeared interested in the train, and had asked GEOG to keep it in storage.⁴⁰

292. In August 2014, IEC representatives travelled to Texas to view the Shell train. However, by the time they landed in Houston, Shell had informed GEOG that it did not want to sell the train.⁴¹

293. The IEC representatives nonetheless inspected the Shell unit and the parties discussed the possibility of purchasing similar trains from GEOG.⁴²

294. The Parties negotiated the Contracts in the first two weeks of September 2014,⁴³ and signed them on 13 September 2014.⁴⁴

295. Pursuant to Clause 5 of the Equipment Contract, GEOG was to deliver the Trains to IEC by their respective Delivery Dates, i.e. Train 1 by 13 June 2015 and Train 2 by 13 September 2015.⁴⁵ By virtue of Change Order Request No. 19,⁴⁶ the contractual Delivery Dates were amended as follows: Train 1: 24 June 2015; Train 2: 24 September 2015.⁴⁷

296. However, neither Train was delivered by its Delivery Date, and it is disputed among the Parties whether the Trains were delivered at all and, if so, when they were delivered.

³⁴ Metric tonnes per annum.

³⁵ SoC, ¶56.

³⁶ SoCC, ¶18.

³⁷ SoCC, ¶24.

³⁸ SoCC, ¶40; SoC, ¶¶55-56.

³⁹ SoCC, ¶40; SoC, ¶57.

⁴⁰ SoCC, ¶40; SoC, ¶57.

⁴¹ SoCC, ¶41; SoC, ¶¶59-60.

⁴² SoCC, ¶42; SoC, ¶61.

⁴³ SoCC, ¶¶43-44; SoC, ¶66.

⁴⁴ SoC, ¶69.

⁴⁵ SoC, ¶81.

⁴⁶ Exhibit R-24.

⁴⁷ SoCC, ¶¶73; SoC, ¶¶313, 415.

- 297. IEC began installation works for Train 1 in December 2015.⁴⁸ However, the installation, commissioning and start-up of the Trains was very considerably delayed for reasons that are disputed among the Parties.
- 298. In April 2016, IEC acquired Train 3 directly from Shell.⁴⁹
- 299. Train 3 was started-up in May 2019.⁵⁰
- 300. As of 30 July 2020, neither Train 1 nor Train 2 had entered into operation.⁵¹

IX. RELIEF SOUGHT BY THE PARTIES

A. Claimants

- 301. In their Notice of Demand and Commencement of Arbitration of 31 July 2018, the Claimants described their claims under the Equipment Contract as follows:

“Nature of the Claims include breach of contract resulting in damages arising from, inter alia: (i) defective LNG process design, necessitating plant re-configuration and additional CAPEX (capital expenditures); (ii) delivery of defective and/or sub-standard components/equipment; (iii) failure to timely deliver the required equipment/materials/manuals in the configuration required (specifically, modularized components prepared for tropical environment) causing additional OPEX (operational expenditures); (iv) diminution of production capacity; (v) no accessibility to certain areas and loss of useful plant life; (vi) liquidated damages; and (vii) loss of profits recoverable due to gross negligence or willful misconduct, fraud, and/or breach of fiduciary duty.”⁵²

- 302. And they described their claims under the Services Agreement as follows:

“Nature of the Claims include the failure to provide the requisite supervision, guidance and training insofar as (i) the installation of the component parts of the plant; (ii) preservation of the materials/equipment between delivery and commissioning; (iii) precommissioning and commissioning guidance and (iv) plant operational supervision and training. Damages include a refund of payments made for deficient, unproductive and/or ineffective services and related losses associated with the delays and additional OPEX incurred as a consequence of the failure to provide the agreed services in a timely fashion. The calculation of the total sum of the losses suffered is ongoing, portions are

⁴⁸ SoC, ¶150.

⁴⁹ SoCC, ¶45; SoC, ¶157, Footnote 202.

⁵⁰ Cs' PHB1, ¶104; April 2019, according to Exhibit CWS-12, ¶2.4; see also Exhibit RWS-7, ¶3.

⁵¹ Claimants' Response to Procedural Order No. 10, of 30 July 2020, p. 2.

⁵² Claimants' Notice of Demand and Commencement of Arbitration of 31 July 2018, p. 2.

related to the damages associated with the September 13, 2014 Equipment Contract referenced above and there are ongoing breaches from the continued failure to provide the requisite qualified personnel with expertise in the LNG liquefaction processing field. The subject Equipment Services Contract provides for consolidated arbitration in respect to claims associated with the Equipment Contract.”⁵³

303. In the Statement of Claim, the Claimants' request for relief read as follows:

“Claimants respectfully request that the Tribunal issue its final award:

- (a) declaring that Greenville is a third-party beneficiary of the Equipment Contract and the Services Contract;*
- (b) declaring that BHGE and BHGE LLC are responsible, along with GEOG, for performance of the obligations under the Equipment Contract and the Guarantee;*
- (c) declaring that GEOG, BHGE and BHGE LLC have breached the Equipment Contract;*
- (d) declaring that GE Nigeria has breached the Services Contract;*
- (e) declaring that GEOG, BHGE and BHGE LLC have breached the Guarantee;*
- (f) awarding Claimants damages of US\$ 591 million as articulated in the Lapuerta Expert Report and the Witness Statement of Erik Helsen;*
- (g) declaring that GEOG, BHGE and BHGE LLC are each liable, jointly and severally, to Claimants for all additional damages and further losses that Claimants may incur as a result of their breaches of the Equipment Contract, including costs of remedying latent and patent defects and lost profits arising from the continuing unavailability of the project;*
- (h) declaring that GE Nigeria and GEOG are liable to Claimants for all additional damages and further losses that Claimants may incur as a result of GE Nigeria's breaches of the Services Contract;*
- (i) declaring that GEOG, BHGE and BHGE LLC are jointly and severally liable for fraudulently inducing Claimants to enter into the Equipment Contract;*
- (j) declaring that GEOG, BHGE and BHGE LLC are jointly and severally liable for defrauding Claimants during the performance of the Equipment Contract;*
- (k) ordering Respondents, jointly and severally, to compensate Claimants for all fees and expenses incurred in connection with this arbitration, including legal fees and*

⁵³ Claimants' Notice of Demand and Commencement of Arbitration of 31 July 2018, p. 4.

expenses, expert fees and expenses, and all other expenses including the fees of the Arbitral Tribunal and the administrative fees and costs of the AAA/ICDR;

(l) granting such other and further relief as the Arbitral Tribunal deems just and appropriate.”⁵⁴

304. In the Statement of Reply, the Claimants' prayer for relief was:

“Claimants respectfully request that the Tribunal issue its final award:

(a) declaring that Greenville is a third-party beneficiary of the Equipment Contract and the Services Contract;

(b) declaring that BHGE and BHGE LLC are responsible, along with GEOG, for performance of the obligations under the Equipment Contract and the Guarantee;

(c) declaring that GEOG, BHGE and BHGE LLC have breached the Equipment Contract;

(d) declaring that GE Nigeria has breached the Services Contract;

(e) declaring that GEOG, BHGE and BHGE LLC have breached the Guarantee;

(f) awarding Claimants damages of no less than US\$ 697 million as articulated in the Lapuerta Reply Report and the Second Witness Statement of Erik Helsen;

(g) declaring that GEOG, BHGE and BHGE LLC are each liable, jointly and severally, to Claimants for all additional damages and further losses that Claimants may incur as a result of their breaches of the Equipment Contract, including costs of remedying latent and patent defects and lost profits arising from the continuing unavailability of the project;

(h) declaring that GE Nigeria and GEOG are liable to Claimants for all additional damages and further losses that Claimants may incur as a result of GE Nigeria's breaches of the Services Contract;

(i) declaring that GEOG, BHGE and BHGE LLC are jointly and severally liable for fraudulently inducing Claimants to enter into the Equipment Contract;

(j) declaring that GEOG, BHGE and BHGE LLC are jointly and severally liable for defrauding Claimants during the performance of the Equipment Contract;

(k) ordering Respondents, jointly and severally, to compensate Claimants for all fees and expenses incurred in connection with this arbitration, including legal fees and

⁵⁴ SoC, ¶514.

expenses, expert fees and expenses, and all other expenses including the fees of the Arbitral Tribunal and the administrative fees and costs of the AAA/ICDR;

(l) granting such other and further relief as the Arbitral Tribunal deems just and appropriate.”⁵⁵

305. In their First Post-Hearing Brief, the Claimants requested:

“Claimants respectfully request that the Tribunal issue its final award:

(a) declaring that Greenville is a third-party beneficiary of the Contract and the Services Agreement or is otherwise entitled to recover its damages under those Contracts, and that the Tribunal has jurisdiction over its claims;

(b) declaring that BHGE and BHGE LLC are responsible, along with GEOG, for performance of the obligations under the Contract and the Guarantee;

(c) declaring that GEOG, BHGE and BHGE LLC have breached the Contract;

(d) declaring that GE Nigeria has breached the Services Agreement;

(e) declaring that GEOG, BHGE and BHGE LLC have breached the Guarantee

(f) awarding Claimants damages of no less than US\$ 700 million as articulated in the Updated Workpapers in the Lapuerta Reply Report, plus interest;

(g) alternatively, awarding Claimants no less than US\$ 244.9 million as articulated in the Second Witness Statement of Erik Helsen, plus interest;

(h) awarding liquidated damages in the amount of \$4.8 million, plus interest;

(i) awarding Claimants additional damages of US\$ 58,642,586.96 for take-or-pay costs to date;

(j) declaring that GEOG, BHGE and BHGE LLC are each liable, jointly and severally, to Claimants for all additional damages and further losses that Claimants may incur as a result of their breaches of the Equipment Contract, including take-or-pay costs, costs of remedying latent and patent defects and lost profits arising from the continuing unavailability of the project;

(k) declaring that GE Nigeria and GEOG are liable to Claimants for all additional damages and further losses that Claimants may incur as a result of GE Nigeria’s breaches of the Services Agreement;

⁵⁵ SoR, ¶691.

(l) *declaring that GEOG, BHGE and BHGE LLC are jointly and severally liable for fraudulently inducing Claimants to enter into the Equipment Contract;*

(m) *declaring that GEOG, BHGE and BHGE LLC are jointly and severally liable for defrauding Claimants during the performance of the Equipment Contract;*

(n) *ordering Respondents, jointly and severally, to compensate Claimants for all fees and expenses incurred in connection with this arbitration, including legal fees and expenses, expert fees and expenses, and all other expenses including the fees of the Arbitral Tribunal and the administrative fees and costs of the AAA/ICDR; and*

(o) *granting such other and further relief as the Arbitral Tribunal deems just and appropriate.”⁵⁶*

306. As indicated above,⁵⁷ on 3 May 2020, in Procedural Order No. 9, the Arbitral Tribunal decided to not give its consent to the submission of the new claim made in ¶235(i) of the Claimants' First Post-Hearing Brief (additional damages of US\$ 58,642,586.96 for take-or-pay costs).
307. In their Second Post-Hearing Brief, the Claimants did not include a petitum.
308. In their Submission on Fees and Costs of 29 May 2020, the Claimants explained the following:

“Mr. Lapuerta’s model and Mr. Helsen’s damages calculations included Claimants’ Opex (as an input for Mr. Lapuerta’s model and as a category of damages (‘OPEX incurred during delay’) in Mr. Helsen’s witness statements), which, as the Tribunal may recall, contained some portions of the legal and expert fees and certain other expenses incurred by Claimants that are contained in this costs submission. To avoid any double-counting, Claimants agree that it is appropriate to remove those amounts from Mr. Lapuerta and Mr. Helsen’s calculations.

Mr. Lapuerta’s Opex inputs included \$2,258,856.23 in 2018 fees and expenses that are included in this costs submission, and so which should be removed from his damages calculations in both the 5-train and 2-train model resulting in revised numbers of \$697,741,144 and \$301,741,144, respectively.

Mr. Helsen’s ‘OPEX incurred during delay’ category of damages included \$8,976,667.67 in 2018 and 2019 fees and expenses that are included in this costs submission, and so which should be removed from his \$75,084,758 calculation, resulting in a revised ‘Opex incurred during delay’ amount of \$66,108,090.”⁵⁸

⁵⁶ Cs' PHB1, ¶235.

⁵⁷ ¶263.

⁵⁸ Claimants' Submission on Fees and Costs of 29 May 2020, ¶¶16-18.

309. The Claimants did not submit an updated request for relief.

B. Respondents

310. In their Demand for Arbitration of 14 August 2018, the Counterclaimants requested:

“The [Counter]Claimants request that the Arbitral Tribunal:

- (a) Order IEC to pay the amount of \$9,581,307 to GEOG for change orders to be issued under the Equipment Contract, plus accrued interest;*
- (b) Order IEC to pay the amount of \$2,428,888 to GEOG for additional claims made under the Equipment Contract, plus accrued interest;*
- (c) Order IEC to pay the amount of \$4,750,000 to GEOG for the Mechanical Completion of Train #1, plus accrued interest;*
- (d) Order IEC to pay the amount of \$19,600,508 to GE Nigeria for additional compensation due under the Services Contract, plus accrued interest;*
- (e) Order the Respondent to reimburse the Claimants for all costs and expenses incurred in arguing their claims in this arbitration, including the fees and/or expenses of the Arbitral Tribunal, the AAA administrative costs, legal counsel (including internal counsel), experts, consultants, and the costs of any witnesses or employees engaged in the preparation or presentation of the Respondents’ defense and counterclaim; and*
- (f) Grant all further or other relief that the Arbitral Tribunal deems appropriate.”⁵⁹*

311. In their Answering Statement of 31 August 2018, the Counterclaimants requested:

“A. Rejecting the consolidation of disputes other than those arising under the “first group of contracts” as defined by the ICDR in its correspondence of August 21 and August 27, 2018;

B. Rejecting the inclusion in this proceeding of any non-signatories to the “first group of contracts” which, for the sake of clarity, provide for arbitration only between GE O&G and PCSNL, on the one side, and IEC, on the other, the same parties named in the demand for arbitration presented by GE O&G and PCSNL, with no consent given for the inclusion of any other legal entities in this proceeding absent demonstration of a valid agreement to arbitrate;

C. Rejecting the demand for arbitration presented by IEC (and Greenville) for the reasons set out in the demand for arbitration presented by GE O&G and PCSNL (now

⁵⁹ Respondents' Demand for Arbitration of 14 August 2018, ¶36.

denominated as counterclaims by the ICDR), and otherwise for failing to specify any provision of the relevant contracts for which any breach is alleged to have occurred;

D. Ordering the Claimants to reimburse such defendants for all costs and expenses incurred in defending the claims in this arbitration, including the fees and/or expenses of the Arbitral Tribunal, the AAA administrative costs, legal counsel (including internal counsel), experts, consultants, and the costs of any witnesses or employees engaged in the preparation or presentation of the defense; and

E. Granting all further or other relief that the Arbitral Tribunal deems appropriate.”⁶⁰

312. And the BHGE Entities requested:

[...] the Arbitral Tribunal to:

A. Issue an award declaring the lack of jurisdiction of the Arbitral Tribunal to rule on any claims raised by the Claimants against Baker Hughes, a GE Company and Baker Hughes, a GE Company LLC;

B. Order the Claimants to reimburse such defendants for all costs and expenses incurred in defending the claims in this arbitration, including the fees and/or expenses of the Arbitral Tribunal, the AAA administrative costs, legal counsel (including internal counsel), experts, consultants, and the costs of any witnesses or employees engaged in the preparation or presentation of the defense; and

C. Grant all further or other relief that the Arbitral Tribunal deems appropriate.”⁶¹

313. In the Statement of Counterclaim, the Respondents' request for relief read as follows:

“229. The Respondents request that the Arbitral Tribunal:

(a) Declare the Arbitral Tribunal's lack of jurisdiction to rule on (i) any claims raised by Greenville Oil & Gas Co. Ltd against the Respondents and/or (ii) any claims raised by the Claimants against Baker Hughes, a GE Company, LLC and Baker Hughes, a GE Company;

(b) Order IEC to pay the amount of \$4,750,000 to GEOG for the Mechanical Completion of Train 1, plus accrued interest;

(c) Order IEC to pay the amount of \$9,905,408.62 to GEOG for additional compensation due under the Equipment Contract, plus accrued interest;

⁶⁰ Respondents' Answering Statement of 31 August 2018, ¶1.

⁶¹ Respondents' Answering Statement of 31 August 2018, ¶2.

- (d) Order IEC to pay the amount of \$15,511,076.68 to GE Nigeria for additional compensation due under the Services Contract, plus accrued interest;
- (e) Order IEC to pay the amount of \$80,000 to the Respondents for its costs incurred in the proceedings in the Southern District of New York;
- (f) Order IEC to (i) cease and desist from disclosure to unauthorized third parties of GEOG Confidential Information, (ii) return to GEOG all original copies of the documents shared with Softec and any other unauthorized third party, and (iii) destroy all copies of such documents in its possession;
- (g) Order the Claimants to reimburse the Respondents for all costs and expenses incurred in arguing their claims in this arbitration, including the fees and/or expenses of the Arbitral Tribunal, the ICDR/AAA administrative costs, legal counsel (including internal counsel), experts, consultants, and the costs of any witnesses or employees engaged in the preparation or presentation of the Respondents' defense and counterclaim; and
- (h) Grant all further or other relief that the Arbitral Tribunal deems appropriate.⁶²

314. In the Statement of Defense, the Respondents' prayer for relief read as follows:

"The Respondents request that the Arbitral Tribunal:

- (a) *Declare the Arbitral Tribunal's lack of jurisdiction to rule on (i) any claims raised by Greenville Oil & Gas Co. Ltd against the Respondents and/or (ii) any claims raised by the Claimants against Baker Hughes, a GE Company, LLC and Baker Hughes, a GE Company;*
- (b) *Reject all claims advanced by the Claimants;*
- (c) *Order IEC to pay the amount of \$21,362,377.60 for payments due under the Contracts, plus accrued interest;*
- (d) *Order IEC to pay the amount of \$7,981,202.22 to GEOG for additional compensation due under the Equipment Contract, plus accrued interest;*
- (e) *Order IEC to pay the amount of \$12,835,326.28 to GE Nigeria for additional compensation due under the Services Contract, plus accrued interest;*
- (f) *Order IEC to pay the amount of \$100,198.12 to the Respondents for its costs incurred in the proceedings in the Southern District of New York;*

⁶² SoCC, ¶229.

- (g) Order IEC to (i) cease and desist from disclosure to unauthorized third parties of GEOG Confidential Information, (ii) return to GEOG all original copies of the documents shared with Softec and any other unauthorized third party, and (iii) destroy all copies of such documents in its possession;
- (h) Order the Claimants to reimburse the Respondents for all costs and expenses incurred in arguing their claims in this arbitration, including the fees and/or expenses of the Arbitral Tribunal, the ICDR/AAA administrative costs, legal counsel (including internal counsel), experts, consultants, and the costs of any witnesses or employees engaged in the preparation or presentation of the Respondents' defense and counterclaim; and
- (i) Grant all further or other relief that the Arbitral Tribunal deems appropriate.⁶³

315. In the Respondents' First Post-Hearing Brief, the request for relief was the following:

"The Respondents request that the Arbitral Tribunal:

- (a) *Declare the Arbitral Tribunal's lack of jurisdiction to rule on (i) any claims raised by Greenville Oil & Gas Co. Ltd against the Respondents and/or (ii) any claims raised by the Claimants against Baker Hughes, a GE Company, LLC and Baker Hughes, a GE Company;*
- (b) *Dismiss all claims for costs or damages of any type allegedly incurred by Greenville, as being beyond the Tribunal's jurisdiction to award costs to a non-party;*
- (c) *Declare that the Arbitral Tribunal has no power to award claims beyond the Contracts without assessing whether the contractual remedies were intended to address the breaches alleged by the Claimants;*
- (d) *Reject all claims advanced by IEC or, if Greenville is not dismissed from the arbitration, by both of the Claimants, with the exception of the amount of \$891,500, conceded by the Respondents to IEC to be direct damages incurred by IEC;*
- (e) *Order IEC to pay the amount of \$21,362,377.60 for payments due under the Contracts, plus accrued interest;*
- (f) *Order IEC to pay the amount of \$7,461,503.70 to GEOG for additional compensation due under the Equipment Contract, plus accrued interest;*

⁶³ SoD, ¶279.

- (g) Order IEC to pay the amount of \$11,475,565.88 to GE Nigeria for additional compensation due under the Services Contract, plus accrued interest;
- (h) Order IEC to pay the amount of \$100,198.12 to the Respondents for its costs incurred in the proceedings in the Southern District of New York;
- (i) Order IEC to (i) cease and desist from disclosure to unauthorized third parties of GEOG Confidential Information, (ii) return to GEOG all original copies of the documents shared with Softec and any other unauthorized third party, and (iii) destroy all copies of such documents in its possession;
- (j) Order the Claimants to reimburse the Respondents for all costs and expenses incurred in arguing their claims in this arbitration, including the fees and/or expenses of the Arbitral Tribunal, the ICDR/AAA administrative costs, legal counsel (including internal counsel), experts, consultants, and the costs of any witnesses or employees engaged in the preparation or presentation of the Respondents' defense and counterclaim; and
- (k) Grant all further or other relief that the Arbitral Tribunal deems appropriate.”⁶⁴

316. In their Second Post-Hearing Brief the Respondents requested the following:

“The Respondents request that the Arbitral Tribunal grant the requests for relief as outlined in the Respondents’ First Post Hearing Brief, as slightly modified herein, and order IEC to pay the total amount of \$40,115,484.30 (plus interest).

Further, in light of the new claims introduced by the Claimants and with acknowledgement of Procedural Order No. 9, the Respondents request that the Arbitral Tribunal:

(a) Reject the liquidated damages claim as it was submitted in violation of Amended Procedural Order No. 1, Sections 25, 43 and 51, beyond the Arbitral Tribunal’s authority or jurisdiction, and in gross violation of due process, appearing for the first time in the post-hearing submission; or, in the alternative, to the extent liquidated damages are granted to IEC, declare that such amount covers all delay-related requests for relief raised by the Claimants.”⁶⁵

C. Claimants’ relief sought with respect to the Respondents’ counterclaims

317. In their Answering Statement of 5 September 2018, the Claimants requested:

⁶⁴ Rs' PHB1, ¶219.

⁶⁵ Rs' PHB2, ¶¶142-143.

"IEC hereby seeks the following relief in respect to the Counterclaims:

- a. Denial of GEOG's and GE-Nigeria's claims under the Equipment Contract and the Services Agreement in their entirety;*
- b. Recovery of all costs and expenses incurred by Claimants in prosecuting their claims and defending the Counterclaims in this arbitration including the fees and expenses of the Arbitral Tribunal, the AAA, legal counsel, experts and consultants; and*
- c. Such further and different relief as the Tribunal deems appropriate."*⁶⁶

318. In their subsequent briefs the Claimants did not submit an updated prayer for relief with respect to the Respondents' counterclaims.

X. CLAIMANTS' CLAIMS

A. Jurisdiction over the Claimants' claims

1. Jurisdiction over Greenville's claims

a. Respondents' position

319. In their Statement of Counterclaim, the Respondents object to the Arbitral Tribunal's jurisdiction over any claims raised by Greenville against any of the Respondents arguing that Greenville is not a signatory to the Equipment Contract or the Services Agreement (together, the "**Contracts**") or to any arbitration agreement with the Respondents.⁶⁷

320. In their Statement of Defense, the Respondents object to the Claimants' argument that Greenville is entitled to bring claims under the arbitration agreements in the Contracts because it is a third-party beneficiary to those Contracts.⁶⁸

321. They rely on *Dormitory Authority v. Samson Construction Co.*⁶⁹ to argue that the mere knowledge by the GE Entities that the Rumuji Plant would ultimately be operated by Greenville fails to support a finding of third-party beneficiary status.⁷⁰

⁶⁶ Claimants' Answering Statement of 5 September 2018, ¶55.

⁶⁷ SoC, ¶23.

⁶⁸ SoD, ¶88-120.

⁶⁹ Exhibit RLA-6.

⁷⁰ SoD, ¶119.

322. They also rely on *Dormitory Authority v. Samson Construction Co.* as well as on *Port Chester Elec. Const. Co. v. Atlas*⁷¹ to argue that construction contracts need to contain express contractual language in order to confer rights upon third parties.⁷²

323. Moreover, the Respondents point at the agreements entered into between IEC and Greenville⁷³ which show that IEC acted as Greenville's EPC contractor. In contrast, the Respondents argue, the GE Entities' role was that of mere subcontractors to IEC for certain equipment and services, with no obligations towards Greenville.⁷⁴ The Respondents adduce Clause 30.1 of the Equipment Contract which provides that "*the provisions of this Agreement are for the benefit of the Parties hereto and not for any other third party.*"⁷⁵ In challenge to the Claimants' argument that Clause 19 of the Equipment Contract confers upon Greenville the status of a third-party beneficiary as a carve-out from the general provision in Clause 30.1, the Respondents contend that "*[a] plain reading of the indemnification provision in Clause 19 indicates that the Parties intended to protect against unforeseeable liability, e.g., unforeseeable tort actions by unnamed third parties.*"⁷⁶ They further rely on *Dormitory Authority v. Samson Construction Co.* to argue that passing references to third parties in the Contracts are not tantamount to an unequivocal expression of rights to Greenville.⁷⁷

324. Finally, the Respondents point at the non-assignability provision in Clause 4 of the Equipment Contract and they rely on *Sazerac Co., Inc. v. Falk*⁷⁸ in which it was found that such non-assignability clauses contradict there being an express intent to benefit third parties.⁷⁹

325. In their First Post-Hearing Brief, the Respondents complain about the Claimants "seek[ing], for the first time in their Statement of Reply, to invoke a federal law doctrine of intertwined estoppel" as a ground for the Arbitral Tribunal's jurisdiction over Greenville's claims.⁸⁰ As for the substance, they argue:

"In order to demonstrate that the 'intertwined' estoppel factors are satisfied, the Claimants should have demonstrated that Greenville's claims fall within the scope of the Contracts between IEC and the Respondents. The Claimants failed to do that, because Greenville is not an intended third-party beneficiary of the Contracts for the reasons set

⁷¹ Exhibit RLA-5.

⁷² SoD, ¶117.

⁷³ Exhibits C-322, C-323 and C-324.

⁷⁴ SoD, ¶¶100-110; see also Rs' PHB1, ¶¶64-65; and Rs' PHB2, ¶31.

⁷⁵ SoD, ¶112.

⁷⁶ SoD, ¶115.

⁷⁷ SoD, ¶120.

⁷⁸ Exhibit RLA-12.

⁷⁹ SoD, ¶126.

⁸⁰ Rs' PHB1, ¶182.

forth in Chapter IV of the Statement of Defense. More importantly, the Claimants failed to distinguish IEC and Greenville losses and damages, on the assumption that the damages incurred by the two companies were exactly the same [...].”⁸¹

b. Claimants’ position

326. In the Statement of Claim, the Claimants argue that Greenville can bring claims under the Contracts by virtue of being a third-party beneficiary.⁸²
327. They allege that the Parties knew and intended throughout negotiation of the Contracts that due to requirements of Nigerian law⁸³ a Nigerian operating subsidiary of IEC would own and operate the Rumuji Plant, and they add that Greenville has actively participated in performance of the Contracts.⁸⁴
328. Moreover, with reference to Clause 30.1, the Claimants argue that “[a]lthough the Sales Agreement includes a statement that ‘the provisions of this Agreement are for the benefit of the Parties hereto and not for any other third party,’ it explicitly carves out beneficiaries ‘provided herein, including Clause 19.’”⁸⁵ And they explain that Clause 19.4 of the Equipment Contract anticipated that the third party to whom IEC would furnish the Trains would have rights against GEOG under the Contract. They argue that it was for that reason that Clause 19.4 provided that IEC should indemnify and hold GEOG harmless for and against any liability arising out of claims made by such third party in excess of the limitations and exclusions provided in this Agreement.⁸⁶
329. In their Statement of Reply, the Claimants invoke *Bayerische*⁸⁷ and *Dean Street*,⁸⁸ explaining that in those cases it was ruled that “*the phrase ‘except as provided herein’ indicates the parties intended to allow some third-party-beneficiary claims.*”⁸⁹
330. The Claimants also challenge the Respondents’ interpretation of *Port Chester Elec. Const. Co. v. Atlas* and they rely to that end on *Key Int’l Mfg., Inc. v. Morse/Diesel, Inc.*⁹⁰ and *Logan-Baldwin v. L.S.M. Gen. Contractors, Inc.*,⁹¹ which, the Claimants submit, demonstrate that the

⁸¹ Rs’ PHB1, ¶183, Footnote 217.

⁸² SoC, ¶309.

⁸³ SoC, ¶309.

⁸⁴ SoC, ¶311; see also SoR, ¶¶450-451.

⁸⁵ SoC, ¶312.

⁸⁶ SoC, ¶312; see also SoR, ¶446.

⁸⁷ Exhibit CLA-5.

⁸⁸ Exhibit CLA-6.

⁸⁹ SoR, ¶444.

⁹⁰ Exhibit CLA-137.

⁹¹ Exhibit CLA-138.

construction-specific rule put forward by the Respondents has no legitimate footing in New York case law.⁹²

331. They further argue that the language in Clause 19.3 of the Equipment Contract and in Clause 19.3 of the Services Agreements, which excludes liability for loss of profit or revenues, loss of use of the plant and customer claims, would be superfluous unless one were to understand that the party who would eventually operate the Rumuji Plant could bring claims against the GE Entities. Only that party could conceivably suffer these kinds of damages. Hence, the Claimants argue that under the principle of New York law that contracts are to be interpreted to avoid rendering terms surplusage it is to be interpreted that Greenville was an intended third-party beneficiary.⁹³
332. Moreover, the Claimants argue that “[i]n light of the importance of time, it is inconceivable that the parties would have intended to preclude virtually all delay-related claims in circumstances of, e.g., willful misconduct by GE/BHGE, yet this is the consequence GE/BHGE seeks to achieve in its Statement of Defense.”⁹⁴
333. In their Statement of Reply, the Claimants further rely on *Astra Oil Co. v. Rover Navigation, Ltd.*⁹⁵ to argue that the Respondents are equitably estopped from refusing to arbitrate Greenville’s claims under the doctrine of intertwined claims estoppel.⁹⁶ The Claimants posit that there is a close corporate and operational relationship between the nonsignatory, Greenville, and the signatory affiliate, IEC,⁹⁷ that Greenville’s claims are intertwined with IEC’s⁹⁸ and that the Respondents have treated Greenville as if it were a party to the agreement.⁹⁹

c. Arbitral Tribunal’s analysis

334. The Arbitral Tribunal finds that it has no jurisdiction over Greenville’s claims, be it on the basis of Greenville being a third-party beneficiary to the Contracts or by virtue of the doctrine of intertwined claims estoppel.
335. Nothing in the Equipment Contract or the Services Agreement justifies the conclusion that Greenville is a third-party beneficiary.

⁹² SoR, ¶¶453-454.

⁹³ SoR, ¶445

⁹⁴ SoR, ¶448.

⁹⁵ Exhibit CLA-140.

⁹⁶ SoR, ¶¶455-458.

⁹⁷ SoR, ¶¶459-460.

⁹⁸ SoR, ¶¶461.

⁹⁹ SoR, ¶¶462-463.

336. The Parties agree, and the Arbitral Tribunal concurs, that the mere knowledge by the GE Entities that the Rumuji Plant would ultimately be operated by Greenville is not sufficient to support a finding of third-party beneficiary status.¹⁰⁰

337. Regardless of whether New York case law generally provides for a rule –construction-specific or otherwise– requiring an express statement that the intention of the contracting parties is to benefit a third party, it is clear that Clause 30.1 of the Equipment Contract and also Clause 30.1 of the Services Agreements explicitly stipulate that the respective contract is “*for the benefit of the Parties hereto and not for any other third party.*” These provisions also establish the following exceptions to the general rule, respectively: “*Except as provided herein, including Clause 19 [...]*” and “*Except as provided in Clause 19 [...]*” Hence, an express provision is required, absent which the general contractual stipulation applies that there are no third-party beneficiaries.

338. Such express provision need not identify the third-party beneficiary by name but it should allow for an identification of the third-party beneficiary and it should stipulate which contractual rights such third-party beneficiary may exercise.

339. The only instance of an exception to the general rule excluding third-party beneficiaries at which the Claimants point is Clause 19.4 of the Equipment Contract (Clause 19 of the Services Agreements does not contain an analogous provision). This provision does indeed anticipate that third parties could make claims against GEOG “[i]f Buyer is furnishing Seller's Plants or Parts to a third party by contract or using Seller's Plants or Parts at a facility owned by a third party.” And for those cases it makes two stipulations, namely that (i) “*Buyer shall obtain from such third party a provision affording Seller the protection of this Clause*” and that (ii) “[Buyer] shall, in any event, indemnify and hold Seller harmless for and against any liability arising out of claims made by the third party in excess of the limitations and exclusions provided in this Agreement.” But it is not at all clear that Clause 19.4 of the Equipment Contract anticipates such third-party claims to be contractual claims under the contract. As pointed out by the Respondents,¹⁰¹ it rather appears that Clause 19.4 of the Equipment Contract anticipates potential tort actions by third parties. Claims made under the Equipment Contract by third-party beneficiaries would be subject to the Equipment Contract's provisions, including the limitations and exclusions of liability of Clause 19. Hence, it would be redundant for IEC to obtain from such third party a provision affording GEOG the protection of Clause 19 of the Equipment Contract. Likewise, it is logically excluded that GEOG would be liable under the Equipment Contract vis-à-vis a third-party beneficiary in excess of the limitations and exclusions of the Equipment

¹⁰⁰ SoD, ¶119; SoR, ¶452.

¹⁰¹ SoD, ¶115.

Contract, because contractual claims asserted by a third-party beneficiary are subject to the same limitations and exclusions. It is thus clear that neither of the two stipulations in Clause 19.4 could operate with respect to claims made by third-party beneficiaries under the Equipment Contract. As explained by the Claimants themselves, under New York law, contracts are to be interpreted to avoid rendering terms surplusage.¹⁰²

340. Hence, the Arbitral Tribunal sees no reason to depart from the general rule established in Clause 30.1 of the Equipment Contract and also Clause 30.1 of the Services Agreements. Accordingly, it finds that Greenville may not bring claims under the arbitration agreements in the Contracts by virtue of being a third-party beneficiary.
341. As regards the doctrine of intertwined claims estoppel, the Arbitral Tribunal is not persuaded by the Claimants' explanations on Greenville's claims being intertwined with IEC's. The Claimants argue in this regard: "*Like the nonsignatory petitioner in Astra Oil, Greenville asserts claims jointly with IEC, bringing claims for delay damages under the controlling agreements (which contain arbitration clauses) rather than under a separate, unrelated contract.*"¹⁰³ However, an arbitral tribunal's jurisdiction over claims made by a non-signatory cannot logically rest on the ground that such claims are being brought by the non-signatory under the agreement that it has not signed. Such reasoning begs the question. No signatory of an agreement can be compelled by a non-signatory to arbitrate past the jurisdictional phase on the basis of the mere assertion of claims under the agreement. It is true that *Astra Oil Co. v. Rover Navigation, Ltd.* could arguably be read this way, insofar as the Court seemed to conclude that the claims were intertwined based on "*the fact that Astra's claims against Rover, for Astra seeks arbitration, are brought directly under the charter party signed by Rover and AOT.*"¹⁰⁴ However, in that case the Court did not address whether Astra conceivably had any standing to bring such claims under the charter party. In fact, it appears that Rover had admitted the possibility "*that Astra may have a claim under the charter party.*"¹⁰⁵ In contrast, in the present case the Arbitral Tribunal has already found that Greenville is not a third-party beneficiary to the Contracts and that it thus has no standing whatsoever under either the Equipment Contract or the Services Agreement. There are thus no claims that could meaningfully be assessed as to their intertwined-ness with IEC's.

¹⁰² SoR, ¶445.

¹⁰³ SoR, ¶461.

¹⁰⁴ Exhibit CLA-140, *281.

¹⁰⁵ Exhibit CLA-140, *281.

2. Jurisdiction over the claims against the BHGE Entities

a. BHGE Entities' position

342. In the Statement of Counterclaim, the BHGE Entities deny being successors to GEOG¹⁰⁶ and they explain that the 2017 merger between General Electric Company and Baker Hughes Inc. only meant a change at the level of GEOG's parent company which now was BHGE LLC.¹⁰⁷ They further point out that they have not consented –explicitly or implicitly– to arbitration with the Claimants.¹⁰⁸

343. In the Statement of Defense, the BHGE Entities also challenge the Claimants' contention that they are alter egos of GEOG or that they are equitably estopped from objecting to the Arbitral Tribunal's jurisdiction.¹⁰⁹

344. They explain that BHGE is a holding company and has no material assets other than its ownership in BHGE LLC and certain intercompany and tax-related balances.¹¹⁰

345. They further assert that GEOG continues to be an active legal entity with its own distinct corporate identity, its own employees, totaling over 2,000, its own books and records, its own bank accounts and its own financial records. They also posit that GEOG and its parent company, BHGE LLC, maintain separate bank accounts and that not all assets were transferred out of GEOG, the remaining assets being sufficient to satisfy any judgment against it in this arbitration.¹¹¹

346. They also point at letters sent by GEOG to IEC in July 2017¹¹² and in June 2018¹¹³ assuring that the relationship with GEOG and GE Nigeria remained unchanged and that GEOG and GE Nigeria remained willing and able to perform their obligations under the Contracts.¹¹⁴

347. They also argue that the business and marketing decisions to use the Baker Hughes trade name and logo when interacting with the public, including within the GEOG employee emails, are irrelevant in determining the true relationship between the parent and subsidiary company.¹¹⁵

¹⁰⁶ SoCC, ¶24.

¹⁰⁷ SoCC, ¶25; see also SoD, ¶¶136-137.

¹⁰⁸ SoCC, ¶26.

¹⁰⁹ SoD, ¶144.

¹¹⁰ SoD, ¶138.

¹¹¹ SoD, ¶¶138, 150.

¹¹² Exhibit R-182.

¹¹³ Exhibit R-10.

¹¹⁴ SoD, ¶¶139-140.

¹¹⁵ SoD, ¶148.

b. Claimants' position

348. In their Statement of Claim, the Claimants contend that both BHGE Entities are successors of GEOG and GE Nigeria and have successor liability under the Contracts. In addition, the Claimants assert that the BHGE Entities are liable as alter egos under standards for piercing the corporate veil.¹¹⁶ The Petition to Compel Arbitration,¹¹⁷ which the Statement of Claim incorporates by reference,¹¹⁸ puts forward equitable estoppel as a further cause of action.¹¹⁹

349. The Claimants explain that in 2017 General Electric Company, as the parent company of all GE subsidiaries, agreed a merger by virtue of which the GE oil and gas business, including GEOG¹²⁰ and GE Nigeria were contributed to BHGE LLC.¹²¹ They further explain that BHGE LLC is ultimately owned, in part, and controlled fully by BHGE.¹²²

350. The Claimants assert that after the merger, the Contracts were "*implemented*" by BHGE LLC and/or BHGE LLC,¹²³ which "*have stepped in and taken over performance of the Contracts after the merger between GEOG and Baker Hughes was effected in 2017.*"¹²⁴ They also allege that the BHGE Entities have "*knowingly exploited and derived direct benefits from the Contracts.*"¹²⁵ They also posit that "*GEOG, meanwhile, has no current employees, is not performing any business or selling any equipment, and is no longer engaged in the oil and gas business.*"¹²⁶

351. In their Statement of Reply, the Claimants insist that "*it is indisputable that since that merger, Respondent GEOG has been rendered illiquid, insolvent and faces doubt as a going concern*" and that "*BHGE has replaced GEOG in all meaningful ways.*"¹²⁷ In particular, they assert that BHGE LLC also received exclusive, direct control over GEOG's finances,¹²⁸ that there is considerable overlap of GEOG's and BHGE's officers, directors, and personnel,¹²⁹ that BHGE

¹¹⁶ Exhibit C-758 (incorporated by reference in SoC, ¶¶21, 307), Petition to Compel Arbitration, ¶¶65-66.

¹¹⁷ See above, ¶77(i).

¹¹⁸ SoC, ¶¶21, 307.

¹¹⁹ Exhibit C-758, Petition to Compel Arbitration, ¶¶84-88.

¹²⁰ Exhibit C-758 (incorporated by reference in SoC, ¶¶21, 307), Petition to Compel Arbitration, ¶61.

¹²¹ SoC, ¶18; Exhibit C-758 (incorporated by reference in SoC, ¶21), Petition to Compel Arbitration, ¶¶49-50.

¹²² Exhibit C-758 (incorporated by reference in SoC, ¶¶21, 307), Petition to Compel Arbitration, ¶51.

¹²³ Exhibit C-758 (incorporated by reference in SoC, ¶¶21, 307), Petition to Compel Arbitration, ¶53.

¹²⁴ SoC, ¶306(a).

¹²⁵ Exhibit C-758 (incorporated by reference in SoC, ¶¶21, 307), Petition to Compel Arbitration, ¶83.

¹²⁶ Exhibit C-758 (incorporated by reference in SoC, ¶¶21, 307), Petition to Compel Arbitration, ¶61; see generally, Exhibit C-758 (incorporated by reference in SoC, ¶¶21, 307), Petition to Compel Arbitration, ¶¶67-82; see also SoC, ¶306; and SoR, ¶¶465-468.

¹²⁷ SoR, ¶464.

¹²⁸ SoR, ¶¶469, 477, referring to Exhibit R-181.

¹²⁹ SoR, ¶¶476, 478-479, referring to Exhibit R-181.

has taken over the former headquarters of GEOG in London and Houston,¹³⁰ that BHGE and GEOG share website and emails¹³¹ and that GEOG is inadequately capitalized.¹³²

352. As regards the cause of action of direct-benefits estoppel, the Claimants submit that “*BHGE — not GEOG — sent the June 2018 demands for change orders that underpin GE/BHGE’s counterclaim for more than \$30 million.*”¹³³

c. Arbitral Tribunal’s analysis

353. The Arbitral Tribunal finds that the BHGE Entities are not GEOG’s or GE Nigeria’s successors in interest. The context in which successor liability can arise is when a company sells or transfers all its assets to another company, following which the former is either extinguished or continued as a mere shell.¹³⁴ The Claimants have not alleged that GEOG or GE Nigeria have sold or transferred all of their assets to any of the BHGE Entities. Hence, the figure of successor liability is not applicable to the present circumstances.

354. Likewise, the Arbitral Tribunal finds that the BHGE Entities are not alter egos of GEOG or GE Nigeria. There is no doubt that BHGE LLC controls its subsidiaries GEOG and GE Nigeria. However, as the Claimants acknowledge,¹³⁵ “*absent a showing that ‘control and domination was used to commit wrong, fraud, or the breach of a legal duty, or a dishonest and unjust act’ New York law will not allow a piercing of the corporate veil.*”¹³⁶ While the Claimants spend considerable efforts in showing control and domination, they only vaguely hint at a possible fraud or wrong committed against the Claimants (e.g. they allege that there is evidence that “*perhaps asset stripping*”¹³⁷ occurred and they mention “*funds swept up into BHGE from GEOG*”¹³⁸), falling short of actually alleging and proofing the commission of a fraud or wrong against the Claimants (e.g., bankruptcy fraud). Therefore, the Arbitral Tribunal sees no reason to pierce the corporate veil. On the contrary, the Arbitral Tribunal finds that there is no evidence that any objectionable acts were committed. Neither the 2017 merger between the GE Entities’ parent, General Electric Company, and Baker Hughes Inc., nor the ensuing rebranding and group-wide homogenization of names and logos, nor a certain integration/overlap or officers and personnel,

¹³⁰ SoR, ¶480.

¹³¹ SoR, ¶¶481-482.

¹³² SoR, ¶¶483-492.

¹³³ SoR, ¶499; see also Exhibit C-758 (incorporated by reference in SoC, ¶¶21, 307), Petition to Compel Arbitration, ¶86.

¹³⁴ See Exhibit CLA-156, *249; Exhibit CLA-157, *392; Exhibit CLA-75, *574-*575; Exhibit CLA-88, *32; Exhibit CLA-113, *17-*19; Exhibit CLA-108, *10.

¹³⁵ SoR, ¶471.

¹³⁶ Exhibit CLA-145, *138.

¹³⁷ SoR, ¶488.

¹³⁸ SoR, ¶500.

nor a sharing of infrastructure, nor the granting of certain powers of attorney over GEOG's bank accounts to BHGE LLC's officers, nor an inadequate capitalization of GEOG (unless caused by fraudulent acts, which is not the case), nor any other of the circumstances put forward by the Respondents, amounts to anything but normal marketing and business behavior.

355. Finally, the Arbitral Tribunal does not consider that the BHGE entities are estopped from objecting to the Arbitral Tribunal's jurisdiction under the doctrine of direct-benefits estoppel. As the Claimants explain and acknowledge, this would require showing that a non-signatory received direct benefits under the agreement in question.¹³⁹ However, the only factual allegations made by the Claimants to specify which benefits the BHGE Entities might have obtained are (i) that funds were "*swept up into BHGE from GEOG*,"¹⁴⁰ (ii) that GEOG does not maintain independent finances –because it has granted certain powers over its bank accounts to BHGE's officers,¹⁴¹ and (iii) that "*it was Baker Hughes, a GE entity, that pressed claims for compensation under the Equipment Contract and Sales Agreement*" because "[t]he claims appeared on Baker Hughes, a GE entity letterhead, and were executed by Marco Pagliaro, a Baker Hughes Project Manager, 'on behalf of GE Oil and Gas LLC.'"¹⁴² The Arbitral Tribunal has no reason to believe that the BHGE Entities received any benefits under the Contracts beyond the normal –indirect– benefits any parent company receives from its subsidiary's business, i.e. in the form of dividends, interest on loans and the like. Further, the Arbitral Tribunal fails to see how the Claimants' allegation that GEOG does not maintain independent finances could support a finding that the BHGE Entities received direct benefits under the Contracts. Lastly, with regard to the claims allegedly pressed by the BHGE Entities, the Arbitral Tribunal understands that the Claimants refer to the letters of 29 June 2018.¹⁴³ The letters were signed on behalf of GE Nigeria and GEOG, respectively. Neither the fact that the letters bear a letterhead with the name/logo of "*BAKER HUGHES a GE company*" nor that the person who signed them presents himself as a "*Baker Hughes Project Manager*" is apt to render the BHGE Entities authors of the letters. As explained above, these are purely marketing aspects with no bearing on the existing corporate structure.

356. It should be added that the Arbitral Tribunal cannot grant the Claimants' request to make adverse inferences for failure by the Respondents to comply with document production orders.¹⁴⁴ The making of such adverse inferences would require, among others, that the Claimants allege how

¹³⁹ SoR, ¶498.

¹⁴⁰ SoR, ¶500.

¹⁴¹ SoR, ¶500.

¹⁴² Exhibit C-758 (incorporated by reference in SoC, ¶¶21, 307), Petition to Compel Arbitration, ¶¶86; see also SoR, ¶499.

¹⁴³ Exhibits R-3 and R-4.

¹⁴⁴ SoR, ¶¶499-500.

the documents that were not disclosed could conceivably prove the fact the Claimants wish to prove. However, the Claimants have neither specified which fact they wish to prove (i.e. which sort of direct benefits the BHGE Entities could plausibly have received under the Contracts) nor how the requested documents could have proven such fact.

357. In conclusion, when IEC negotiated the Contracts, it bargained for the Guarantee, by virtue of which it attained the right to bring claims against GEOG under the Services Agreement between IEC and GE Nigeria. However, IEC did not bargain to extend the circle of liable parties under the Contracts further up the corporate chain. The Arbitral Tribunal does not find that the Claimants have shown any grounds that could justify a departure from the Parties' bargain in the Contracts.
358. Thus, the Arbitral Tribunal upholds the BGHE Entities' objection to the Arbitral Tribunal's jurisdiction.

3. Power to award claims beyond the Contracts

359. The Respondents request a declaration "*that the Arbitral Tribunal has no power to award claims beyond the Contracts without assessing whether the contractual remedies were intended to address the breaches alleged by the Claimants.*"¹⁴⁵
360. The Respondents do not appear to be raising a concrete jurisdictional objection to any claim brought by any of the Claimants but they rather seem to be seeking a declaration providing an answer to an abstract question about the Arbitral Tribunal's powers (that may or may not be of incidental relevance to the decision over a claim). The Arbitral Tribunal finds that its mandate, as per the arbitration agreements and the Rules, is to resolve actual disputes, not to answer abstract questions. Thus, the Arbitral Tribunal declines to issue the declaration sought by the Respondents.

B. Claims under the Equipment Contract

361. The Arbitral Tribunal first analyzes IEC's claim for liquidated damages for delayed delivery, as per Clause 6.5 of the Equipment Contract.¹⁴⁶ It then goes on to analyze IEC's claims for direct damages related to the remediation of defects, as per Clause 17.4(i) of the Equipment Contract.¹⁴⁷ Then it addresses IEC's claims for damages associated with the delayed entry into operation of the Trains.¹⁴⁸

¹⁴⁵ Rs' PHB1, ¶219(c); see also Rs' PHB1, ¶84.

¹⁴⁶ §X.B.1.

¹⁴⁷ §X.B.2.

¹⁴⁸ §X.B.3.

1. **Liquidated damages for delayed delivery (Clause 6.5 of the Equipment Contract)**
 - a. **Whether IEC has made a timely claim for liquidated damages for delay under Clause 6.5 of the Equipment Contract**
 - (1) **IEC' position**

362. In the Statement of Claim, IEC submits that “*GE is obligated to pay US\$4.25 million in liquidated damages under Clause 6.5.*”¹⁴⁹ However, the prayer for relief does not include a specific request for liquidated damages but several requests for declaratory relief, a request for “*damages of US\$ 591 million as articulated in the Lapuerta Expert Report and the Witness Statement of Erik Helsen,*”¹⁵⁰ and a request for “*such other and further relief as the Arbitral Tribunal deems just and appropriate.*”¹⁵¹

363. At the Additional Hearing, IEC submitted:

“*[...] it is understood that the liquidated damages is part of what we seek. It's quite clear, when you read the Request for Relief in the context of the entire Statement of Claim, paragraphs 414 to 416, they specifically say we are entitled to the liquidated damages. GE addressed the claim for liquidated damages in their responsive papers. There is no issue of due process, and in their Request for Relief at the end, although we didn't make a specific reference to liquidated damages, in the prayer for relief at the end, specifically there is a final clause that does specifically say: All further relief that this Tribunal thinks is appropriate and just. And given the fact that this was requested specifically in the context of the Statement of Claim, it is captured with it.*”¹⁵²

364. In the Claimants' First Post-Hearing Brief IEC repeats that “*Claimants made clear in the SoC that they are 'entitled to Liquidated Damages for Delay'*” and that “*BHGE addressed that claim in its SoD.*”¹⁵³ And the prayer for relief now included a specific request for liquidated damages: “*awarding liquidated damages in the amount of \$4.8 million, plus interest.*”¹⁵⁴

365. In the Claimants' Second Post-Hearing Brief, IEC states –in reply to GEOG's argument that it had highlighted in the Statement of Defense that liquidated damages for delay had not been requested in the Statement of Claim—¹⁵⁵ that “*BHGE did not object in its SoD and certainly did*

¹⁴⁹ SoC, ¶416.

¹⁵⁰ SoC, ¶514(f).

¹⁵¹ SoC, ¶514(l); the Claimants also included a request for costs (¶514(k)).

¹⁵² Transcript of the Additional Hearing held in Milan on 21 January 2020 (“**Tr. Milan**”), 26:7-23.

¹⁵³ Cs' PHB1, ¶¶131; see also Cs' PHB2, ¶¶118, 126.

¹⁵⁴ Cs' PHB1, ¶235(h).

¹⁵⁵ See below, ¶367.

not 'highlight[] this shortcoming in the Statement of Defense.''" that "BHGE cites ¶¶ 168-169 of its SoD for this proposition," but that "there, BHGE only argued that Claimants had not sought liquidated damages for performance (under Clause 25.4), not for delay (under Clause 6.5)."¹⁵⁶

(2) GEOG's position

366. In the Statement of Defense, GEOG points out that "*the Statement of Claim ignores the liquidated damages for performance, the remedial actions under the warranty clause and the limitation of liabilities*" and that "*[t]he Claimants are not seeking the application of any of those remedies: none of them are referenced or claimed in any of the Claimants' requests for relief.*"¹⁵⁷

367. In the Respondents' First Post-Hearing Brief, GEOG argues that IEC "*did not include liquidated damages of any type in their request for relief at the end of the Statement of Claim*" and that "*[t]hey only mention liquidated damages for delay in three paragraphs (out of 516 total), concluding that 'GE is obligated to pay US\$4.25 million in liquidated damages under Clause 6.5.'*"¹⁵⁸ GEOG points at paragraphs 25 and 43 of Procedural Order No. 1, pursuant to which "*the Arbitral Tribunal shall rule solely on the requests identified in [the relief sought].*"¹⁵⁹ GEOG further submits that it "*highlighted this shortcoming in the Statement of Defense, but the Claimants did not change their strategy,*" that "*[t]he Statement of Reply is silent as to liquidated damages under both Clause 6.5 and 6.6*" and that "*[t]he Claimants attempted to rectify their deficient pleadings only at the Additional Hearing, arguing that their request for relief for liquidated damages for delay can be included in the catch-all final clause requesting 'All further relief that this Tribunal thinks is appropriate and just.'*"¹⁶⁰ And it argues that "*even if the Arbitral Tribunal were to determine that GEOG would have been liable for liquidated damages pursuant to Clause 6.5 of the Equipment Contract, the Arbitral Tribunal cannot award any damages*" because GEOG did not take a position on a claim for liquidated damages for delay "*either from a legal (validity and effectiveness of the clause) or from a factual standpoint.*"¹⁶¹

368. In the Respondents' Second Post-Hearing Brief, GEOG argues that "*[t]he fact that the Claimants never asked for liquidated damages is demonstrated by the new version of their request for relief. If such claim had been included in the Claimants' original claims, there would be no need to add*

¹⁵⁶ Cs' PHB2, ¶¶127.

¹⁵⁷ SoD, ¶168.

¹⁵⁸ Rs' PHB1, ¶215.

¹⁵⁹ Rs' PHB1, ¶215.

¹⁶⁰ Rs' PHB1, ¶216.

¹⁶¹ Rs' PHB1, ¶218.

a new request for relief now.”¹⁶² GEOG concludes that “[t]he request is new, late, unauthorized, and therefore inadmissible”¹⁶³ and it thus requests that the Arbitral Tribunal,

“[r]eject the liquidated damages claim as it was submitted in violation of Amended Procedural Order No. 1, Sections 25, 43 and 51, beyond the Arbitral Tribunal’s authority or jurisdiction, and in gross violation of due process, appearing for the first time in the post-hearing submission; or, in the alternative, to the extent liquidated damages are granted to IEC, declare that such amount covers all delay-related requests for relief raised by the Claimants.”¹⁶⁴

(3) Arbitral Tribunal’s analysis

369. In the Arbitral Tribunal’s view, IEC’s request for liquidated damages pursuant to Clause 6.5 of the Equipment Contract was included in its Statement-of-Claim request for “*damages of US\$ 591 million as articulated in the Lapuerta Expert Report and the Witness Statement of Erik Helsen.*”¹⁶⁵

370. The Equipment Contract distinguishes between two periods during which IEC is entitled to damages for delay, namely the period until the Delay Limit Date and the period beyond the Delay Limit Date:

“The payment of Liquidated Damages shall be Buyer’s sole and exclusive remedy and Seller’s exclusive liability for any failure to achieve or deliver a Plant (or any portion thereof) by the Delay Limit Date or any agreed extension thereof. Should Seller’s failure to deliver a Plant (or any portion thereof) continue beyond the Delay Limit Date, then Buyer shall have the right to pursue and exercise the rights and remedies in Clause 6.6.”¹⁶⁶

371. Specifically, the Equipment Contract stipulates that IEC is entitled,

- (i) to liquidated damages for delay during the period between the Delivery Date and the Delay Limit Date (Clause 6.5), and
- (ii) to recovery of its direct damages for delay during the period subsequent to the Delay Limit Date (Clause 6.6(ii)).

372. Neither the damages articulated in the Lapuerta Expert Report nor those in Mr Helsen’s witness statement exclude the damages incurred as a result of the delay between the Delivery Date and

¹⁶² Rs’ PHB2, ¶15.

¹⁶³ Rs’ PHB2, ¶15.

¹⁶⁴ Rs’ PHB2, ¶143(a).

¹⁶⁵ SoC, ¶514(f).

¹⁶⁶ Equipment Contract. Clause 6.5, paragraph 3.

the Delay Limit Date. Thus, the Arbitral Tribunal understands that with its request for “*damages of US\$ 591 million as articulated in the Lapuerta Expert Report and the Witness Statement of Erik Helsen*,”¹⁶⁷ IEC sought damages (including liquidated damages) as incurred during both periods, i.e. both before and after the Delay Limit Date.

373. Consistent therewith, the Claimant’s Statement of Claim devoted a section to IEC’s contention that “*Claimants Are Entitled to Liquidated Damages for Delay*”¹⁶⁸ for the period until the Delay Limit Date.¹⁶⁹ IEC specifically invoked Clause 6.5 of the Equipment Contract as *causa petendi* for those damages incurred up until the Delay Limit Date.
374. Further, IEC is correct in pointing out that, contrary to GEOG’s contention made in the Respondents’ First Post-Hearing brief, GEOG did not argue in the Statement of Defense that IEC’s request for relief did not include liquidated damages for delay but that, in fact, GEOG “*only argued that Claimants had not sought liquidated damages for performance (under Clause 25.4), not for delay (under Clause 6.5)*.”¹⁷⁰
375. Indeed, in the Statement of Defense, GEOG specifically acknowledged that IEC had requested liquidated damages in the Statement of Claim: “*The only reference in the Statement of Claim to the provisions of the Equipment Contract are three paragraphs at the end requesting \$4.25 million in liquidated damages*.”¹⁷¹ Moreover, GEOG submitted that “*should the Arbitral Tribunal determine that GEOG is liable for any delay, IEC cannot be compensated more than the maximum liquidated damages under the Equipment Contract of \$4.25 million*.”¹⁷²
376. Therefore, the Arbitral Tribunal rejects GEOG’s contention that, because it did not consider that IEC has pled a claim for liquidated damages for delay, it refrained from taking a position on such claim, “*either from a legal (validity and effectiveness of the clause) or from a factual standpoint*.”¹⁷³ IEC requested liquidated damages for delay in its Statement of Claim. GEOG recognized this and was prompted to taking a position in the Statement of Defense. And it submitted the factual allegations and legal arguments it deemed convenient.

¹⁶⁷ SoC, ¶514(f).

¹⁶⁸ SoC, §IV.E.

¹⁶⁹ SoC, ¶415.

¹⁷⁰ Cs’ PHB2, ¶127.

¹⁷¹ SoD, ¶158.

¹⁷² SoD, ¶162.

¹⁷³ Rs’ PHB1, ¶218.

377. Further, the Arbitral Tribunal notes that, as acknowledged by GEOG, even before this arbitration was commenced IEC had already “presented a formal claim for liquidated damages under the Equipment Contract.”¹⁷⁴

b. Whether liquidated damages for delay are due from the Delivery Date or from the end of the 4-week grace period

(1) IEC’ position

378. In the Statement of Claim, IEC submits that “*Trains 1 and 2 were due to be delivered on June 24, 2015 and September 24, 2015 respectively*” and that “[t]he Delay Limit Date – the date on which the liquidated damages reached the 5 percent price threshold — was reached for Trains 1 and 2 on November 11, 2015 and February 11, 2016 respectively.”¹⁷⁵

379. In the Claimants’ First Post-Hearing Brief, IEC argues that the four-week grace period under Clause 6.5 of the Equipment Contract applies to determine whether the delivery is delayed but, once it is determined that the delivery is delayed, the liquidated damages are calculated without regard to such grace period:

*“BHGE claimed entitlement at the closing hearing to a ‘grace period’ of four weeks under Clause 6.5 of the Contract. But that grace period only applies if BHGE achieved delivery within it. If not, liquidated and other damages are payable ‘as from the first Day following the Delivery Date until the Day on which delivery of the Plant actually occurs.’ The four week grace period has no effect here because BHGE’s delay exceeds four weeks.”*¹⁷⁶

(2) GEOG’s position

380. At the Additional Hearing GEOG explained its divergent view on this matter as follows:

“We would point out a correction here, that it’s not nine and 12 months. It’s 10 and 13 months. Because there is a four-week grace period before liquidated damages are imposed. So that’s the actual timing.

*Again, it’s in the liquidated damages clause. It says specifically they should not be imposed before the end of the four-week grace period.”*¹⁷⁷

¹⁷⁴ SoCC, ¶130, with reference to Exhibit R-82 (IEC’s letter demanding payment of attached invoices for liquidated damages under Clause 6.5 in the amount of USD 4,750,000).

¹⁷⁵ SoC, ¶1415.

¹⁷⁶ Cs’ PHB1, ¶32.

¹⁷⁷ Tr. Milan, 208:21-209:4.

(3) Arbitral Tribunal's analysis

381. It is undisputed that by virtue of Change Order Request No. 19,¹⁷⁸ the contractual delivery dates were amended as follows:¹⁷⁹

- (i) Train 1: 24 June 2015.
- (ii) Train 2: 24 September 2015.

382. The contractual provision about whose interpretation the Parties disagree reads as follows:

"Prior to applicability of the Liquidated Damages and start of the Liquidated Damages applicability, Seller shall have a four (4) Week grace period from the date of the Delivery Date (i.e. Seller may be late by four (4) Weeks without any application of the Liquidated Damages in this Clause 6.5 or the remedies and rights in Clause 6.6)."¹⁸⁰

383. The Arbitral Tribunal does not agree with IEC's interpretation that once the four-week grace period elapses, the liquidated damages become retroactively due from the Delivery Date, but it concurs with GEOG's interpretation that liquidated damages for delay start accruing from the end of the four-week grace period.

384. The provision not only stipulates that GEOG shall have a four-week grace period prior to "applicability of the Liquidated Damages" but it also adds that the "**start of the Liquidated Damages applicability**"¹⁸¹ shall be after the four-week grace period. This distinction and separate mention of "applicability" and "start of the applicability" strongly suggest that the elapsing of the four-week grace period not only determines that the liquidated damages become applicable, but that this marks the point in time on which they *start* accruing.

385. Consequently, liquidated damages started accruing,

- (i) on 23 July 2015 for Train 1, and
- (ii) on 23 October 2015 for Train 2.

386. And the Delay Limit Date was,

- (i) 30 September 2015 for Train 1, and
- (ii) 31 December 2015 for Train 2.

387. Moreover, the Arbitral Tribunal notes that this was also IEC's interpretation back in late 2015, when it sent a letter to GEOG explaining:

¹⁷⁸ Exhibit R-24.

¹⁷⁹ SoCC, ¶¶73; SoC, ¶¶313, 415.

¹⁸⁰ Equipment Contract, Clause 6.5, paragraph 1.

¹⁸¹ Emphasis added.

“As you know, under the terms of the Agreement, the Seller was obliged to complete delivery of the first Plant nine months from the Effective Date of the Agreement (i.e. June 13, 2015), extended to June 23, 2015 by means of VOR 19), and with a four (4) week grace period that applied thereafter. Once beyond the grace period, which expired by our calculations on July 21, 2015, Liquidated Damages (equal to 0.5 percent of the Contract Price of that Plant, up to a maximum of 5% of the Contract Price), were due for each week that the Seller did not complete delivery. Hence, and as of September 29, the full extent of Liquidated Damages had accrued since delivery had not occurred by then.”¹⁸²

388. Regardless of the slight divergence between this calculation and the Arbitral Tribunal’s, IEC did not retroactively apply liquidated damages, as it now seeks to defend.

c. Whether GEOG is entitled to an extension of the Delivery Date pursuant to Clause 6.3 of the Equipment Contract

(1) IEC’ position

389. In the Statement of Claim, IEC posits that “[p]ursuant to Clauses 2 and 24 of the Equipment Agreement[...] the[delivery] dates are immutable unless IEC and GE both agree to change them” and it explains in this regard that “in fact, with one exception of an 11-day extension, no change orders were issued that provided for extensions of time.”¹⁸³

390. As to the substance of GEOG’s request for an extension of the Delivery Date, IEC alleges that it was not delayed in responding to GEOG’s requests for information and that, in any event, such requests had little design impact.¹⁸⁴

(2) GEOG’s position

391. In the Statement of Counterclaim, GEOG alleges that “IEC’s actions caused delay to the production of the Trains.”¹⁸⁵ Specifically, it submits that “IEC’s demands for changes to the contract specifications, as well as IEC’s indecision on major elements impacted the design of the Trains.”¹⁸⁶

¹⁸² Exhibit C-109.

¹⁸³ SoC, ¶¶81-82.

¹⁸⁴ SoC, ¶¶146-148.

¹⁸⁵ SoC, ¶76.

¹⁸⁶ SoC, ¶76; see in this regard SoC, ¶¶77-80 (changes in scope requested by IEC) and 81-86 (lack of response to GEOG RFIs).

392. In the Statement of Defense, GEOG invokes the expert report by Mr Blinkhorn submitted with this memorial in support of its claim for an extension of time of the delivery date.¹⁸⁷

(3) Arbitral Tribunal's analysis

393. Clause 6.3 of the Equipment Contract sets forth the requirements for extensions of the Delivery Date. One of those requirements is that GEOG give IEC written notice of its claim for an extension of time within seven Working Days after the date when the event causing the delay became known to Seller.

394. However, it was only after the fact that GEOG made a formal request for extension of the Delivery Date, namely in Change Order Request No. 30, dated 8 December 2015.¹⁸⁸ The agreed delivery dates (24 June and 24 September 2015, respectively) had elapsed months earlier. And the alleged events causing the delay (namely the changes in scope requested by IEC and the delayed responses by IEC to GEOG's requests for information) would have been known by much longer than seven Working Days before 8 December 2015.

395. In addition to being untimely, GEOG's request for extension of the Delivery Date failed to state, as required by Clause 6.3 and 6.2 of the Equipment Contract, the event causing the delay, the impact which such event had had or in its opinion was likely to have or would have on its ability to achieve any of the Milestones or the steps which it had taken, was taking and would take to mitigate the adverse consequences of such event.

396. Thus, GEOG is not entitled to an extension of the Delivery Date under Clause 6.3 of the Equipment Contract. Hence, the Delivery Dates remain as agreed in virtue of Change Order Request No. 19:¹⁸⁹

- (i) Train 1: 24 June 2015.
- (ii) Train 2: 24 September 2015.

¹⁸⁷ SoD, ¶161; see Exhibit RER-14, ¶4.3.31; see also Rs' PHB1, ¶42.

¹⁸⁸ The Arbitral Tribunal notes that on 28 June 2018 GEOG submitted to IEC a claim for extension of time for *Mechanical Completion of the Trains* (Exhibit R-4a, ¶X11.1.10). While Mechanical Completion is a payment milestone under the Equipment Contract, the Arbitral Tribunal is unaware of any contractual deadline for GEOG that could be linked to Mechanical Completion (the definition of "Mechanical Completion" in Clause 1, according to which Mechanical Completion is deemed to be reached five months after the Delivery Date in the event GEOG is prevented from Mechanical Completion due to reasons beyond its control, does not establish a deadline for GEOG). Thus, the Arbitral Tribunal fails to comprehend what the 28 June 2018 claim for extension of time refers to.

¹⁸⁹ Exhibit R-24.

d. Whether the ICP was part of the contractual scope of delivery

(1) IEC' position

397. The Parties disagree on whether the interconnecting piping ("ICP"), i.e. the "*piping needed to connect the GE modules to one another within the Trains*,"¹⁹⁰ was within GEOG's original scope of delivery. This question is relevant to ascertaining the date of actual delivery since the ICP was delivered later than the rest of the modules.¹⁹¹

398. With regard to this question, IEC puts forward five arguments in the Statement of Claim:

"First, GE's scope of supply includes modules M-2000 through M-2007. Those modules, particularly M-2000, include the ICPs that connect the various modules. In fact, the scope of supply expressly states that while the rack will be delivered as loose parts, the 'Pipes will be delivered assembled.'

Second, GE's scope of supply expressly excludes the ICPs 'to non-Seller supplied equipment.' If ICPs between Seller supplied equipment was also excluded, the contract would not have limited the exclusion to non-Seller supplied equipment but would have applied it to all ICPs. Contrary to New York law, GE's reading of the Equipment Contract renders this clause superfluous.

Third, consistent with the first two points, the signed Minutes of Meeting of the Kickoff Meeting that occurred on September 22-23, 2014 — just after the Equipment Contract was signed — state that ICPs 'between modules is in GE scope of supply and shipped prefabricated,' but that ICPs "between GE equipment and non-GE equipment is not in GE scope of supply."

Fourth, GE's isometric drawings and P&IDs both confirm that GE has always understood the ICPs connecting its modules are within its scope of supply, while ICPs connecting the Trains to Claimants' other equipment are not. GE's counterclaim fails to disclose what its own drawings and diagrams expressly show.

Fifth, GE's argument is irrational. GE sold a fully modularized plant capable of producing 0.25 MTPA of LNG. It did not sell a series of individual pieces of equipment."¹⁹²

399. In the Claimants' First Post-Hearing Brief, IEC points at the fact that Mr Hillier, GEOG's expert, "acknowledged that at the beginning of the project, Respondents placed a lump-sum order with

¹⁹⁰ SoC, ¶432.

¹⁹¹ See below, ¶¶419-420.

¹⁹² SoC, ¶¶434-438; see also SoR, ¶¶586-589.

*Turner for both the 'provision of the modules and the pipework-related ICP' further showing BHGE understood the ICPs to be in their scope."*¹⁹³

(2) GEOG' position

400. In the Statement of Counterclaim, GEOG submits that "[t]he provision of interconnecting pipes (the 'ICP') between the modules was removed from GEOG's Scope of Supply during contract negotiations in order to lower the price for the Trains, as IEC believed it could purchase the ICP separately from a different supplier for a lower price."¹⁹⁴ GEOG posits that it was for that reason that "the last sentence of Section 3.1.1 of the Scope of Supply attached to the Equipment Contract states 'Seller's Scope of Supply ends at skid limit.'"¹⁹⁵
401. With respect to its statements to the contrary at the Kick-Off Meeting in September 2014, GEOG contends that this was a mistake and that "a misunderstanding during a complex project" does not amount to "a modification of the Equipment Contract."¹⁹⁶
402. GEOG explains that it finally "agreed to supply the ICP on the understanding that the Parties would meet within the coming month to resolve the issue of additional compensation for the change."¹⁹⁷
403. In the Statement of Defense, GEOG describes its understanding of the impact of the ICP issue on the date of delivery as follows:

*"The Claimants argue that the final modules for Train 1 were delivered in February 2016 and the final modules for Train 2 were delivered in March 2016. Because the later deliveries included only the ICP provided pursuant to a subsequent change order and minor items, Mr. Hillier and Mr. Blinkhorn disagree with the Claimants and consider the reasonable last shipment delivery date to be October 28, 2015 for Train 1 and February 8, 2016 for Train 2."*¹⁹⁸

404. In the Respondents' First Post-Hearing Brief, GEOG insists that the ICP was de-scoped during the contract negotiations:

"Both Parties agree that the price for each Train was negotiated from an original offer price of \$55 million per Train to the agreed contract price of \$47.5 million per Train. This circumstance indicates that some concessions were made on both sides, and one of the

¹⁹³ Cs' PHB1, ¶217.

¹⁹⁴ SoCC, ¶171.

¹⁹⁵ SoCC, ¶171.

¹⁹⁶ SoCC, ¶172.

¹⁹⁷ SoCC, ¶173.

¹⁹⁸ SoD, ¶160.

concessions made on GEOG's part was to lower the purchase price in exchange for the de-scope of some of the parts that had been included in its offer.

One of these de-scope items was the ICP between the modules, an item worth approximately five percent of the contract value. The last sentence of Section 3.1.1 of the Scope of Supply attached to the Equipment Contract reflects this agreement and provides that 'Seller's Scope of Supply ends at skid limit'. But, since the signing of the Equipment Contract, the Parties have been in dispute as to which Party is responsible for the ICP, which was ultimately supplied by GEOG.¹⁹⁹

(3) Arbitral Tribunal's analysis

405. Appendix A ("Scope of Supply") to the Equipment Contract ("**Appendix A**")²⁰⁰ contains a "Preliminary module and Equipment List" which includes modules M-2000 through M-2007. The description of each of these modules is "Pipe Rack parts."²⁰¹ IEC has explained that "[t]hose modules, particularly M-2000, include the ICPs that connect the various modules."²⁰² This was confirmed by IEC's expert, Mr Lancaster, who explained:

"When the M-2000 module is identified within the 3D CAD model of the plant. The figure below which isolates the M-2000 module highlights that it is interconnecting pipework:

[Figure 5.6 – Module M-2000 within the Plant Model]

The following provides an example of line NG208 (yellow items) which forms part of M-2000, which can be seen to interconnect a number of the plant's modules (blue items) to M-1100 as shown in the figure below:

[Figure 5.7 – Line NG208 part of M-2000, linking numerous modules to Module M-1100]

I have reviewed other lines within M-2000 in a similar manner and this demonstrates that the piping in M-2000 is comprised of ICP.

The figure below shows the connections between M-2000 (yellow items) in general and various modules (blue items). It can be seen from this that all of the piping is making connections between one or more modules or items of equipment supplied by the Respondents and can therefore be considered ICP.

[Figure 5.8 – M-2000 Piping Connections to Various Plant Modules]²⁰³

¹⁹⁹ Rs' PHB1, ¶¶31-32.

²⁰⁰ Exhibit C-770; Exhibit R-17.

²⁰¹ Exhibit R-17, pp. 5-6.

²⁰² SoC, ¶434.

²⁰³ Exhibit CER-1, ¶¶322-325.

406. The Arbitral Tribunal finds these explanations provided by Mr Lancaster, in conjunction with the very illustrative Figures 5.6 to 5.8, to be strongly persuasive of IEC's position that the ICP was within GEOG's scope of supply. Neither GEOG nor its experts have challenged that module M-2000 is comprised of ICP that connects the various modules.

407. Moreover, Mr Lancaster has reviewed GEOG's P&IDs and concluded that "*[i]n my opinion the symbology of the P&IDs also supports the inclusion of ICP within the Respondents' scope.*"²⁰⁴

408. In addition, Appendix A expressly excludes "*[o]ther interconnecting piping to non-Seller supplied equipment*" from GEOG's scope of supply.²⁰⁵ If the piping that interconnects the Seller-supplied modules were also excluded, it would make no sense for the exclusion to be circumscribed to interconnecting piping to non-Seller-supplied equipment.

409. Indeed, GEOG acknowledged at the Kickoff Meeting of 22 September 2014 that the ICP was in fact within its scope:

"Interconnecting pipe between modules is in GE scope of supply and shipped prefabricated.

*Interconnecting pipe between GE equipment and non-GE equipment is not in GE scope of supply."*²⁰⁶

410. The Arbitral Tribunal is not persuaded by GEOG's argument that this was just an error and that the contractual provision to the contrary prevails.²⁰⁷ While GEOG's statement at the Kickoff Meeting is not of paramount importance for determining this issue, and it could very well just have been an error, the Arbitral Tribunal does not agree with GEOG's contention that the sentence in Appendix A "*Seller's Scope of Supply ends at skid limit*"²⁰⁸ means that the ICP is excluded. The paragraph in question reads as follows:

*"All major equipment, piping, valves, electrical and instrument components shall be prefabricated and installed on skidded modules. These modules shall be insulated (where required by process and/or ambient conditions), painted and tested in the shop to reduce the Site installation work, ensure quality, and shorten the project delivery cycle. Seller's Scope of Supply ends at skid limit."*²⁰⁹

²⁰⁴ Exhibit CER-1, ¶333.

²⁰⁵ Exhibit R-17, p. 8, §3.1.3, No. 24.

²⁰⁶ Exhibit C-46 p. 12.

²⁰⁷ SoCC, ¶171.

²⁰⁸ Exhibit R-17, p. 7, §3.1.1.

²⁰⁹ Exhibit R-17, p. 7, §3.1.1.

411. It is clear that this refers to the skidded modules. It would be nonsensical to seek to apply the provision that “*Seller’s Scope of Supply ends at skid limit*” to modules that are not skidded, like module M-2000 which is comprised of ICP.

412. Neither is the Arbitral Tribunal convinced by GEOG’s argument that “[t]he provision of interconnecting pipes (the ‘ICP’) between the modules was removed from GEOG’s Scope of Supply during contract negotiations.”²¹⁰ The only evidence referred to by GEOG with respect to this allegation is Change Order Request No. 29²¹¹ which, however, provides no support for the foregoing. On the contrary, Change Order Request No. 29 indicates that “*GE has manufactured ICP for both trains and has shipped train 1 ICP to site*,”²¹² which strongly suggests that GEOG did not just make an error at the Kickoff Meeting, when it acknowledged that the ICP was in its scope, but that it continued to believe during the following 15 months (between the Kickoff Meeting and Change Order Request No. 29) that the ICP was within its scope and that it acted accordingly. GEOG would hardly have manufactured (or had Turner manufacture)²¹³ and shipped the ICP if it believed that it was beyond its scope.

e. Whether the Trains were delivered and, if so, when

(1) IEC’s position

413. In the Statement of Claim IEC stated that the final modules for Train 1 were delivered in February 2016²¹⁴ and that the final modules for Train 2 were delivered in March 2016.²¹⁵

414. However, IEC posits that such delivery did not satisfy GEOG’s contractual obligation as Clause 9.1 of the Equipment Contract stipulates that the Delivery Date is “*the date on which Plant in its entirety is delivered*.”²¹⁶ On this basis, IEC argues:

‘[...] neither train was delivered in its entirety when the modules were delivered because those modules were woefully incomplete. In fact, GE has now admitted that critical pipe supports, cables, VFDs, manuals and more remain outstanding. All of those elements of the Trains are unlikely to be delivered before 2020.’²¹⁷

415. IEC adds that “[d]espite full modularity being an essential feature of the Equipment Contract, the Trains were not only delivered late, but also incomplete,”²¹⁸ i.e. “*with parts missing, leading to*

²¹⁰ SoCC, ¶171.

²¹¹ Exhibit R-128; referred to in SoCC, ¶171, Footnote 195.

²¹² Exhibit R-128.

²¹³ See Exhibit RER-07, ¶AA1.3.

²¹⁴ SoC, ¶314.

²¹⁵ SoC, ¶315.

²¹⁶ SoC, ¶316.

²¹⁷ SoC, ¶316.

²¹⁸ SoC, ¶318.

*loose parts being thrown in with future module shipments and many separate deliveries containing only loose parts.*²¹⁹ More specifically, IEC posits:

"In reality, thousands of parts were identified during the ensuing years as missing from these supposedly 'fully-modularized' Trains, including hundreds of valves, hundreds of instruments, hundreds (perhaps thousands) of nuts and bolts, pipe supports and U-bolts, MRC couplings, electrical cable, cable tray materials, heat tracing, and insulation.

Missing items on both Trains 1 and 2 have been continually shipped for years. For example, missing items on ten different modules of Train 1 were shipped in May and June 2017, and items for another Train 1 module were shipped in January 2018. Similarly, missing items on ten different modules on Train 2 were shipped in June and September 2017 followed by items for another Train 2 module in January 2018. And, even this year, GE continues to ship missing items for modules on both Trains 1 and 2.

*In reality, both Trains were largely fabricated — and sometimes re-fabricated — on site in Nigeria between 2016 and today. As of today, significant additional work remains necessary. [...]*²²⁰

(2) GEOG's position

416. In the Statement of Counterclaim GEOG maintains that "*Train 1 was fully delivered at the Port of Houston on October 23, 2015, and Train 2 was fully delivered at the Port of Houston on February 3, 2016.*"²²¹
417. In the Statement of Defense, GEOG explains that the divergence with IEC as regards the dates of delivery of the final modules is owed to the different views on whether the ICP was within GEOG's scope:

*"The Claimants argue that the final modules for Train 1 were delivered in February 2016 and the final modules for Train 2 were delivered in March 2016. Because the later deliveries included only the ICP provided pursuant to a subsequent change order and minor items, Mr. Hillier and Mr. Blinkhorn disagree with the Claimants and consider the reasonable last shipment delivery date to be October 28, 2015 for Train 1 and February 8, 2016 for Train 2."*²²²

²¹⁹ SoC, ¶319.

²²⁰ SoC, ¶¶320-322; see also SoR, ¶¶421-422, 546; Cs' PHB1, ¶¶23-30, 66, 73, 85.

²²¹ SoCC, ¶74.

²²² SoD, ¶160.

(3) Arbitral Tribunal's analysis

418. Having determined that the ICP was part of GEOG's scope of delivery, the Arbitral Tribunal finds that the final modules of both Trains, including the ICP, were delivered on 28 March 2016.

419. This follows from the Parties' submissions and the expert testimony. GEOG's experts, Messrs Blinckhorn and Hillier, stated that the final modules, including ICP, were delivered on 28 March 2016 (for both Trains 1 and 2).²²³ IEC provided slightly different dates for delivery of the final modules: February 2016 (for Train 1) and March 2016 (for Train 2).²²⁴

420. The Tribunal bases its finding that both Trains were delivered on 28 March 2016 on Mr Hillier's second expert report which explains that the final modules (including the ICP for both Trains as well as four modules related to electrical switchgear, i.e. motor control centers) were delivered with Shipment H11, on 28 March 2016:²²⁵

"H11 – 28 March 2016

i Train 2 – 4 modules (Electrical room)

ii Container 4165575 (ICP – Electrical racking, plus nuts, bolts and other minor items

ICP – 7 pipe spools)

iii Container 4189828 (ICP – Electrical cable, approximately 23,000m

ICP – tubing, approximately 2,600m

ICP – Instrument cable, approximately 32,000ft)"²²⁶

421. However, IEC argues that, pursuant to Clause 9.1, the Delivery Date is the date on which the Train in its entirety is delivered, which is not the case until critical pipe supports, cables, VFDs,²²⁷ manuals and more are delivered.²²⁸ It further contends that "*delivery of the Trains cannot occur until the engineering is performed*,"²²⁹ and thus the existence of any design/engineering defects that require rectification exclude delivery. On that basis, it contends that the Trains are yet undelivered.²³⁰ IEC's expert, Mr Lancaster, posits that delivery was still ongoing on 15 November 2019²³¹ and that at some point around November / December 2017 there was a critical path transfer from "*the general delays to the trains caused by late, incomplete and poor quality module*

²²³ Exhibit RER-14, ¶4.1.10; Exhibit RER-16, ¶¶8.3.4.4-8.3.4.6

²²⁴ SoC, ¶¶314-315.

²²⁵ Exhibit RER-16, ¶8.3.4.4-8.3.4.5.

²²⁶ Exhibit RER-16, ¶8.3.4.3.e.

²²⁷ Variable frequency drive ("VFD").

²²⁸ SoC, ¶316; Cs' PHB1, ¶¶23-26.

²²⁹ Cs' PHB1, ¶¶66, 73, 85.

²³⁰ Cs' PHB1, ¶¶27-30.

²³¹ Exhibit CER-7, ¶126.

supply, to the parallel ongoing issues of the MV Cable, VFD, and Pipe Stress analysis, but effectively these three (3) items are only the on-going components of this incomplete and late supply and have been separated only as they are yet to be resolved.”²³²

422. IEC’s argument raises the question of the distinction between delivery of a defective Train (i.e. non-conformity), and incomplete delivery (i.e. non-delivery) of a Train, or, in Respondents’ counsel’s words, the “*distinction between a warranty claim and a late delivery claim.*”²³³
423. Clause 9.1, on which IEC relies for its argument, reads as follows:

“Seller shall deliver the Plants and the Parts FCA Port of Export (Incoterms 2010). Except for those obligations expressly set forth in the applicable Incoterms 2010, Seller shall not be liable in any claim asserted by Buyer with respect to delivery beyond that point. The Delivery Date for each Plant is the date on which Plant in its entirety is delivered in accordance with this Clause. Partial deliveries of portions and/or modules of a Plant will be permitted. Where a partial delivery is possible, Seller shall deliver those portions and/or modules of a Plant, as and when ready, FCA Port of Export (Incoterms 2010), and the Parties shall cooperate to identify the most opportune sequence of the completion and delivery of portions/modules and shall endeavor to work out an agreed schedule for delivery of same. For the avoidance of doubt, delivery of a Plant for purposes of the Delivery Date shall occur only when the Seller has complied with all of its delivery obligations for the Plant in its entirety.”²³⁴

424. The stipulation that “*delivery of a Plant for purposes of the Delivery Date shall occur only when the Seller has complied with all of its delivery obligations for the Plant in its entirety*” is found in the context of a provision allowing for partial deliveries. In the Arbitral Tribunal’s view, the purpose of this stipulation is to make clear that by making such partial deliveries GEOG is in no way deemed to have discharged its delivery obligation. For example, liquidated damages for delay become due in full, as per Clause 6.5., if even a single module remains undelivered by the Delivery Date. In contrast, the purpose of the stipulation is not to exclude delivery if the Train bears a defect or is missing minor commodity-type fungible items.
425. Thus, if critical equipment had indeed not been delivered, the delivery would be incomplete.
426. In contrast, if such equipment had been delivered but had been defective, such defect would not negate delivery having occurred. Likewise, the Arbitral Tribunal does not agree that the existence

²³² CER-7, ¶124.

²³³ Tr. Day 8, 114:5-6.

²³⁴ Equipment Contract, Clause 9.1.

of design/engineering defects that require rectification negates delivery of the Trains. The following issues complained about by IEC pertain to defects, not to non-delivery:

- (i) Ineffective starting mechanism for MRC (unworkable soft-starter).²³⁵
- (ii) Dangerously undersized electrical cables (MRC Motor electrical cables).²³⁶
- (iii) Inadequately supported pipes (stress analyses).²³⁷
- (iv) Unsafe flare system.²³⁸
- (v) No tropicalization.²³⁹
- (vi) Defectively engineered MR coolers module.²⁴⁰
- (vii) Delivery of untested interconnecting pipes.²⁴¹
- (viii) Delivery of substantially misaligned modules.²⁴²
- (ix) Defectively fabricated static mixer (backwards installation).²⁴³
- (x) Improperly engineered and installed expansion bellows.²⁴⁴
- (xi) Defective inlet guide vanes on the MRCs.²⁴⁵
- (xii) Defective and incomplete automation system.²⁴⁶
- (xiii) Defective electrical cable boxes.²⁴⁷
- (xiv) Inferior boil-off gas compressor.²⁴⁸
- (xv) Amine column pumps without glycol protection.²⁴⁹

427. The following issues complained about by IEC are missing commodity-type fungible items which, in the Arbitral Tribunal's view do not negate delivery of the Trains:

- (i) Tens of thousands of missing and defective nuts, bolts, and studs.²⁵⁰

²³⁵ SoC, ¶¶206-211; Cs' PHB1, ¶¶67-74; Cs' PHB2, ¶¶10(iii), 36-38.

²³⁶ SoC, ¶¶191-196; Reply, ¶¶194-214; Cs' PHB1, ¶¶75-81.

²³⁷ SoC, ¶¶197-205; Reply, ¶¶112-137; Cs' PHB2, ¶¶41-45.

²³⁸ SoC, ¶¶182-190; Reply, ¶¶152-193; Cs' PHB1, ¶¶82-85; Cs' PHB2, ¶¶10(iv), 39-40.

²³⁹ SoC, ¶¶61, 336-340.

²⁴⁰ SoC, ¶¶212-215.

²⁴¹ SoC, ¶¶216-220; Reply, ¶¶26.

²⁴² SoC, ¶¶221-224; Reply, ¶¶27.

²⁴³ SoC, ¶¶225-230; Reply, ¶¶28.

²⁴⁴ SoC, ¶¶231-237; Reply, ¶¶29-30.

²⁴⁵ SoC, ¶¶238-240; Reply, ¶¶31.

²⁴⁶ SoC, ¶¶241-243; Reply, ¶¶32.

²⁴⁷ SoC, ¶¶265-271; Reply, ¶¶38.

²⁴⁸ SoC, ¶¶286-288; Reply, ¶¶43.

²⁴⁹ SoC, ¶¶289-291; Reply, ¶¶44.

²⁵⁰ SoC, ¶¶272-278; Reply, ¶¶39-40.

(ii) Failure to provide heat tracing on equipment and lines.²⁵¹

428. For the same reasons, the following issues, which are combinations of defective and missing commodity-type fungible items, do not negate delivery of the Trains:

- (i) Unaligned MRCs and missing couplings.²⁵²
- (ii) Hundreds of missing, improperly engineered or fabricated, and defective valves.²⁵³
- (iii) Hundreds of missing, defective and improperly sized instruments.²⁵⁴
- (iv) Hundreds of rusted or missing spectacle blinds.²⁵⁵

429. The last item in IEC's complaint is: Incomplete Operation and Maintenance Documentation.²⁵⁶ Clause 12.2 of the Equipment Contract provides that "*[a]ll Technical Documentation will be transmitted to Buyer in their as built status and so marked, in one package called the Final Technical File, according to the Agreement and at the latest one (1) Month after the Delivery Date.*" It follows logically from the fact that this package may be delivered after the Delivery Date that incomplete delivery of Technical Documentation (which includes the Operation and Maintenance Manuals)²⁵⁷ does not negate delivery of the Trains.

430. Hence, having examined all of the issues complained about by IEC, the Arbitral Tribunal finds that none of them negate delivery of the Trains, regardless of how seriously they may affect the operation or safety of the Trains.

431. The Arbitral Tribunal also notes that IEC's contention that the Trains are yet undelivered is inconsistent with its claim for damages for the loss of the warranty value of Trains 1 and 2, which is based on Mr Helsen's statement that "*[t]he warranty periods for the GE liquefaction plants and related parts expired 30 months and 18 months after the Delivery Dates, respectively.*"²⁵⁸

f. Conclusion

432. IEC has made a timely claim for liquidated damages under Clause 6.5 of the Equipment Contract.

²⁵¹ SoC, ¶¶283-285; Reply, ¶42; Cs' PHB1, ¶40.

²⁵² SoC, ¶¶244-248; Reply, ¶33.

²⁵³ SoC, ¶¶249-257; Reply, ¶¶34-36.

²⁵⁴ SoC, ¶¶259-264; Reply, ¶37.

²⁵⁵ SoC, ¶¶279-282; Reply, ¶41.

²⁵⁶ SoC, ¶¶297-300; Reply, ¶46; Cs' PHB1, ¶30.

²⁵⁷ Clause 12.2, paragraph 5, of the Equipment Contract.

²⁵⁸ Exhibit CWS-5, ¶71, third bullet point.

433. GEOG is not entitled to an extension of the Delivery Date under Clause 6.3 of the Equipment Contract. Thus, the Delivery Dates remain as agreed by virtue of Change Order Request No. 19:²⁵⁹

- (i) Train 1: 24 June 2015.
- (ii) Train 2: 24 September 2015.

434. Liquidated damages started accruing,

- (i) on 23 July 2015 for Train 1, and
- (ii) on 23 October 2015 for Train 2.

435. And the Delay Limit Date was,

- (i) 30 September 2015 for Train 1, and
- (ii) 31 December 2015 for Train 2.

436. The ICP was within GEOG's scope of delivery and, thus, the Trains were delivered on 28 March 2016, i.e. each after their respective Delay Limit Date.

437. Therefore, the Claimants are entitled to the maximum amount of liquidated damages for late delivery for both Trains, i.e. USD 4,750,000, in total (5% of the Contract Price).

438. With regard to GEOG's proposition that “[t]he Equipment Contract has interesting language for the application of liquidated damages that gives rise to questions as to whether the stipulated amounts would still be due, or subject to a reduction, in the absence of a demonstrated loss from delay or a demonstration of Respondent GEOG's responsibility for the delay,”²⁶⁰ the Arbitral Tribunal notes (i) that it does not consider that Clause 6.5 of the Equipment Contract requires the demonstration of a loss in order for liquidated damages for delay to be due in full, and (ii) that the Arbitral Tribunal has already determined that GEOG is responsible for the delay.

**2. Direct damages related to the remediation of defects by IEC in lieu of GEOG
(Clause 17.4(i) of the Equipment Contract)**

**a. Preliminary issue: Whether Claimants have made a claim under
Clause 17.4(i) of the Equipment Contract**

439. The Respondents assert that “IEC is not claiming [...] remedies under the warranty provision provided for ‘the Seller's failure or inability to remedy the defects’ (Clause 17.4).”²⁶¹

²⁵⁹ Exhibit R-24.

²⁶⁰ Rs' PHB2, ¶14.

²⁶¹ Rs' PHB1, ¶82.

440. In their Statement of Claim, the Claimants have made the allegation –with specific reference to Clause 17.4 of the Equipment Contract—²⁶² that “*GE has been unable to fix many of these Defects.*”²⁶³ It is true that in Section IV.C of the Statement of Claim, the Claimants only cite Clause 6.6 of the Equipment Contract as contractual basis for their direct damages claims.²⁶⁴ However, the request for relief for damages “*as articulated in [...] the Witness Statement of Erik Helsen*”²⁶⁵ is not limited to any given contractual provision.

441. In any event, in their First Post-Hearing Brief the Claimants clarified that “*if the Tribunal concludes that the Plants were at some point delivered (which they were not) and were subsequently delayed due to defects, damages from that portion of the delay would be recoverable under Clause 17 rather than under Clause 6.6.*”²⁶⁶ And they specifically listed within those damages arising from GEOG’s failure or inability to remedy defects, as per Clause 17.4 of the Equipment Contract, “*the amounts spent to purchase and install the HHR system, external engineering support from Softec and the Lisbon Group, and the costs of the VFD and its installation, as well as additional costs that Claimants are still incurring to remedy BHGE’s defective work.*”²⁶⁷

442. And the Respondents noted in their Second Post-Hearing Brief that “*in the Claimants’ Post-Hearing Submission we find a distinction between the damages for delay under Clause 6 of the Equipment Contract and the costs of repair/replacement under Clause 17 of the same contract.*”²⁶⁸ The Respondents challenge the Clause-17.4 claim by pointing at the supposed inconsistency of the Claimants’ position, for assuming and at the same time denying that delivery of the Trains occurred.²⁶⁹ But they no longer seem to deny that the Claimants have made such claim.

b. Heavy hydrocarbon removal system

443. IEC claims for the costs of purchase and installation the required heavy hydrocarbon removal system (“**HHR**”). IEC’s witness, Mr Helsen explains in this regard:

“*[...] the total direct costs that Claimants have incurred as a result of the need to install an HHR system is \$20,546,934.44, comprised of \$12,077,457.66 in equipment and related transport costs and \$8,469,476.78 in assembling and civil works in Nigeria.*

²⁶² SoC, ¶95.

²⁶³ SoC, ¶96.

²⁶⁴ SoC, ¶396.

²⁶⁵ SoC, ¶514(f).

²⁶⁶ Cs’ PHB1, ¶134.

²⁶⁷ Cs’ PHB1, ¶133; these are precisely the damages items analysed in this section.

²⁶⁸ Rs’ PHB2, ¶37.

²⁶⁹ See Rs’ PHB2, ¶¶19, 37-40.

Claimants recognize (as mentioned by Mr. Hillier) that the HHR system is also being used in connection with Train 3. I have therefore allocated two-third of the total costs incurred to Trains 1 and 2, resulting in a revised amount claimed of \$13,697,562.29.”²⁷⁰

(1) Whether the process design was defective and the costs of the HHR were incurred as a result of GEOG’s failure or inability to remedy such defect

(a) IEC’s position

444. In the Statement of Claim, IEC argues that the HHR came to be required as a consequence of GEOG’s flawed process design. It explains that GEOG’s original design of the Trains, which had a first pass of the cold box of -6.252 °C,²⁷¹ was fatally defective because it failed to provide for proper separation of the heavy hydrocarbons (“HHCs”). As a result of that defect, there was a high risk that HHCs would freeze on the second pass.²⁷²
445. IEC further claims that, around the time the Equipment Contract was signed, GEOG became aware of this problem and proceeded to re-engineer the process in secret.²⁷³ This re-design entailed a lowering of the first pass temperature to -62.35 °C.²⁷⁴ Accordingly, IEC alleges, GEOG ordered from Chart, on or before 13 October 2014, a cold box that could operate in a range between -60 °C to -70 °C for the first pass.²⁷⁵
446. On 9 October 2014, GEOG released a heat material balance under Transmittal 0010²⁷⁶ which was consistent with the one in the Equipment Contact and which, in particular, still showed a first pass temperature of -6.252 °C.²⁷⁷
447. On 15 September 2015, GEOG released a new heat material balance under Transmittal 0128,²⁷⁸ which showed the lower first pass temperature of -62.35 °C.²⁷⁹
448. IEC asserts that with the contract feed gas and a first pass outlet temperature of -62.35 °C, each Train would produce 680.6 TPD²⁸⁰ of LNG and 85.3 TPD of unstabilized condensate, which is substantially below the contractually guaranteed LNG Throughput Capacity of 765.1 TPD of LNG

²⁷⁰ Exhibit CWS-10, ¶32

²⁷¹ See Exhibit C-45, legible version of heat material balance diagram contained in Annex B of Appendix A.

²⁷² SoC, ¶¶167, 171-172.

²⁷³ SoC, ¶168.

²⁷⁴ SoC, ¶177.

²⁷⁵ SoC, ¶175.

²⁷⁶ Exhibit C-254.

²⁷⁷ SoC, ¶170.

²⁷⁸ Exhibit C-259.

²⁷⁹ SoC, ¶¶176-177.

²⁸⁰ Tons per day.

(as per Clause 4.1 of Appendix A) and substantially above the 8.562 TPD of unstabilized condensate shown in the heat material balance diagram contained in the Equipment Contract²⁸¹ ²⁸²

449. IEC alleges that “[w]hen Claimants raised the inconsistencies between the TM-0010 and TM-0128 HMBs with GE, GE revealed that Claimants needed to purchase additional, long-lead equipment — expensive fractionation columns — to separate the various hydrocarbons by type.”²⁸³ Similarly, they assert: “Recognizing this deficiency, GE admitted to Claimants in late 2016 that they would need to purchase a fractionation column in order to obtain the contractually specified volumes of LNG.”²⁸⁴
450. IEC explains that GEOG proposed to sell IEC an HHR, but IEC chose to purchase it from CryoSys, which was able to deliver it more quickly and at a better price.²⁸⁵ IEC claims USD 19,811,753.66, which includes the cost of purchasing the HHR from CryoSys (USD 12.07 million), and the expenses incurred to install that system (USD 7.73 million).²⁸⁶
451. In the Statement of Reply, IEC insists that the original design of the Trains was defective and in this regard it explains that there was, at most, a theoretical 2° C margin against freezing, which is too narrow.²⁸⁷
452. Further, IEC challenges GEOG’s claim that the lowering of the first pass temperature was a consequence of IEC’s request for flexibility to use both pressurized and atmospheric storage.²⁸⁸
 - (i) It argues that before the Equipment Contract was signed, GEOG provided it with two process flow diagrams showing the liquefaction performance of the Trains, one using atmospheric storage and the other using pressurized storage,²⁸⁹ and that both used the same feed gas composition and produced virtually identical volumes of LNG and waste condensate from virtually identical volumes of feed gas and power.²⁹⁰
 - (ii) Moreover, it argues that the change consisting of lowering the first pass temperature was made by no later than 20 September 2014 and that, according to GEOG, it was not until 27-28 October 2014 that IEC made the request for atmospheric storage.²⁹¹ IEC concludes that

²⁸¹ See Exhibit C-45, legible version of heat material balance diagram contained in Annex B of Appendix A.

²⁸² SoC, ¶¶178, 325.

²⁸³ SoC, ¶179.

²⁸⁴ SoC, ¶326.

²⁸⁵ SoC, ¶179.

²⁸⁶ SoC, ¶398.

²⁸⁷ SoR, ¶¶68-81.

²⁸⁸ SoR, ¶¶58-59.

²⁸⁹ Exhibits C-43 and C-44.

²⁹⁰ SoR, ¶¶58-67.

²⁹¹ SoR, ¶¶60-66.

the change of lowering the first pass temperature was made by no later than 20 September 2014 on the basis of an email exchange between Mr Zhao, a GEOG engineer, and Mr Bergmann, of Chart.²⁹² On 15 September 2014, Mr Zhao wrote to Mr Bergmann: “*I understand that you are having a difficulty with the feed gas stream temperature compared to CGC, let us talk to see how we can solve it or we have to do some modification.*”²⁹³ The next day, Mr Bergman replied to Mr Zhao: “*We finished re-designing the heat exchanger today [...]. You'll notice the A/B/C location needs to be moved back down the core. Like you suggested, closer to CGC,*”²⁹⁴ i.e. closer to Shell’s Train 3. IEC explains that outlet of Pass A on the cold box of Shell’s Train 3 is -75.2 °C²⁹⁵ and that “[m]oving the A/B/C location down the core, closer to CGC, meant changing the Pass A outlet temperature from -6.252° C to something colder.”²⁹⁶ IEC further explains that by 20 September 2014, Mr Zhao had prepared an updated HMB (labeled “Case-100A Rev-2”),²⁹⁷ which was for pressurized storage and had a Pass A outlet temperature of -70 °C.²⁹⁸ IEC further points out that the accompanying notes state that the HMB was updated, *inter alia*, to reflect “*MRC performance based on Cameron’s MRC proposal dated on 9/19/2014*” and “*the main HTX performance based on Chart’s datasheets dated on 9/19/2014*”²⁹⁹ and that there is no mention of atmospheric storage.³⁰⁰ IEC further argues that the data sheet for the Cold Boxes, as delivered, issued by Chart on 1 October 2014,³⁰¹ has a first pass temperature of 70.1 °C and that it was designed and intended for pressurized storage.³⁰²

453. IEC argues that GEOG always knew, but kept secret, that it was building Trains that could not meet the guaranteed performance specifications.³⁰³
454. IEC goes on to explain that the Basis of Design sent with Transmittal TM-008,³⁰⁴ and which included both pressurized and atmospheric storage, became the contractual basis of design.³⁰⁵ And it adds that GEOG did not inform IEC of any change to the Guaranteed Performances, and it did not propose an update to Annex B to Appendix A but, on the contrary, with transmittal TM-0010, GEOG sent the same process flow diagram as in Annex B to Appendix A, thus

²⁹² Exhibit R-257 (the references to Exhibit R-253 in the SoR, Footnotes 108-113, seem to be mistaken).

²⁹³ Exhibit R-257, p. 2.

²⁹⁴ Exhibit R-257, p. 1.

²⁹⁵ SoR, ¶61, with reference to Exhibit C-974.

²⁹⁶ SoR, ¶61, with reference to Exhibit CER-6, ¶6.13.

²⁹⁷ Exhibit R-234.

²⁹⁸ SoR, ¶62.

²⁹⁹ Exhibit R-234, p. 4.

³⁰⁰ SoR, ¶63.

³⁰¹ Exhibit C-890.

³⁰² SoR, ¶65.

³⁰³ SoR, ¶¶82-99.

³⁰⁴ Exhibit C-883.

³⁰⁵ SoR, ¶¶100-107.

"(mis)represent[ing] to Claimants that the Amended BOD with atmospheric as well as pressurized storage did not change the Guaranteed Performances and did not require an update to Annex (B)." 306

455. In the Claimant's Second Post-Hearing Brief, IEC challenges GEOG's claim that the feed gas changes drove the process design.³⁰⁷ It argues, among others, that the first time it asked for a simulation of a potential alternative gas composition the final cold box design was long completed.³⁰⁸

(b) GEOG's position

456. GEOG asserts in their Statement of Counterclaim that the originally envisaged gas composition did not have HHCs and, therefore, no HHR was required nor, of course, included within GEOG's scope of supply.³⁰⁹ GEOG explains that, however, due to subsequent changes in the gas composition and the discovery of the presence of HHCs in the feed gas, in early 2017, it determined that an HHR was required.³¹⁰

457. In the Statement of Defense, GEOG explains that the original process design, with a higher first pass temperature, worked.³¹¹ But it was premised on the use of pressurized storage.³¹² However, GEOG explains that on 27-28 October 2014 IEC specifically requested to have "flexibility to be able to use pressurized load out and atmospheric load out"³¹³ and that this request was highlighted and confirmed at a 9-10 December 2014 meeting.³¹⁴ GEOG asserts that it was this change requested by IEC that rendered necessary a lowering of the first pass temperature.³¹⁵ This lowered temperature "produces increased levels of condensate containing C1, C2 and C3 components, with, potentially, the requirement for an HHR."³¹⁶

458. GEOG points out that as early as 10 October 2014 GEOG shared with IEC heat material balances with a first pass temperature of -70 °C.³¹⁷ These heat material balances were "[f]or the

³⁰⁶ SoR, ¶110; see also Cs' PHB2, ¶22.

³⁰⁷ Cs' PHB2, ¶¶31-33.

³⁰⁸ Cs' PHB2, ¶¶33.

³⁰⁹ SoCC, ¶142.

³¹⁰ SoCC, ¶142; see also ¶70, third bullet point: "as a result of further analysis on the gas supplied to the plant"; and ¶36: "the heavy hydrocarbon system [...] was required by the feed gas of the Rumuji Plant."

³¹¹ SoD, ¶32.

³¹² SoD, ¶32.

³¹³ SoD, ¶39, quoting from Exhibit C-51, p. 6.

³¹⁴ SoD, ¶39, referring to Exhibit R-31, point 3.5.

³¹⁵ SoD, ¶31; see also ¶¶41 and 43.

³¹⁶ SoD, ¶31.

³¹⁷ SoD, ¶38; referring to Exhibit C-626.

four process scenarios you have requested (pressurized tank vs atmospheric tank and Frame 5 turbine vs LM2500 turbine).³¹⁸

459. In the Respondents' First Post-Hearing Brief, GEOG explains that it "designed the cold box and the liquefaction process in order to accommodate IEC's request to have the Trains able to operate under pressurized or atmospheric storage and to obtain enough flexibility to deal with different potential gas compositions."³¹⁹

460. And it argues that regardless of the cold box configuration, with the gas that IEC is using today, an HHR would be required.³²⁰

461. Further, GEOG points out that up until after this arbitration commenced IEC assumed that the cost of the HHR was its responsibility.³²¹

462. In the Respondents' Second Post-Hearing Brief, GEOG points out that from IEC's argument that "the Trains are not capable of producing the contractually specified 765TPD of LNG **without** substantially increasing the amount of feed gas and power required, and producing exorbitant amounts of waste condensate" ³²² it follows that "the Trains are capable of producing the contractually specified amount of LNG, at the cost of an increased amount of feed gas, power consumption and condensate."³²³

463. As regards the timing of the decision on the final configuration of the cold box, GEOG asserts:

[...] the first pass temperature of the cold box was only changed on October 13, 2014, at the time the order was placed with Chart. All the previous cases developed by GEOG and Chart were hypotheses, to analyze how the cold box could have worked at different temperatures, in different scenarios, with different gas compositions.³²⁴

(c) Arbitral Tribunal's analysis

i. Preliminary issue: the reasons and timing of GEOG's decision to lower the first pass temperature

464. While understanding the reasons and timing of GEOG's decision to lower the first pass temperature might provide useful context, making final determinations in this regard is not essential to adjudicating IEC's claim for the costs of the HHR. For that task it is sufficient that the Arbitral Tribunal determine whether the process design of the Trains, as built, is in fact defective,

³¹⁸ SoD, ¶38, quoting from Exhibit C-626.

³¹⁹ Rs' PHB1, ¶92.iii.

³²⁰ Rs' PHB1, ¶97.

³²¹ Rs' PHB1, ¶¶96-97.

³²² Rs' PHB2, ¶85, quoting from Cs' PHB1, ¶137, emphasis in the original quote by Respondents.

³²³ Rs' PHB2, ¶86.

³²⁴ Rs' PHB2, ¶91.

and whether the costs of the HHR are damages incurred as a result of GEOG's failure or inability to remedy such defect.

465. These determinations can be made –and are made below³²⁵ regardless of the timing and reasons that led to the process design of the Trains, as built. Nonetheless, given the vast time and effort the Parties have spent on the issue of the lowering of the first pass temperature, the Arbitral Tribunal shall briefly share its findings in this regard.
466. The Parties' competing explanations are as follows:
467. IEC maintains that GEOG became aware that its original design was defective because of the risk of freezing and that, in order to solve this problem, it lowered the first pass temperature. IEC alleges that GEOG made this change by no later than 20 September 2014.³²⁶
468. GEOG's position is less clear. GEOG explains in the Statement of Defense that “[t]he Cold Box was changed compared with the basis of design due to the need to accommodate IEC's request for atmospheric storage, **regardless of the gas composition.**”³²⁷ But in the same brief GEOG also explains that the gas composition had an impact on the cold box design.³²⁸ And GEOG's Technical Report submitted with Mr Amidei's witness statement³²⁹ explains that “*GE modified the selection of the cold box moving from the contractual heat and material balance to an alternative design to avoid any freezing risk of Benzene caused by those potential changes of the feed gas.*”³³⁰ But GEOG's Technical Report also indicates that this was not the single cause of the change but that the change to atmospheric storage also motivated the design change of the cold box:

*“Both changed requirements, the dual product storage concept and the uncertain composition of available feed gas, led GE in good faith to modify the process design and deriving to the common conclusion with IEC for implementation of a heavy hydro carbon removal section.”*³³¹
469. The Arbitral Tribunal is not sure whether GEOG's contention is that the first pass temperature was lowered due to:
 - (i) uncertain composition of available feed gas/potential changes of the feed gas;

³²⁵ §§X.B.2.b(1)(c)ii and X.B.2.b(1)(c)iii.

³²⁶ SoR, ¶¶66.

³²⁷ SoD, ¶¶43, emphasis added.

³²⁸ SoD, ¶¶23, Table 1, Item 4; see also Appendix A to Exhibit RWS-8, Table at pp. 16-17, Item 4.

³²⁹ Exhibit RWS-8.

³³⁰ Appendix A to Exhibit RWS-8, p. 17, emphasis added.

³³¹ Appendix A to Exhibit RWS-8, p. 18; in Rs' PHB1, ¶¶92.iii., GEOG also alleges that both elements drove the lowering of the first pass temperature.

- (ii) the need to accommodate IEC's request for atmospheric storage; or
- (iii) both.

470. Also, GEOG's allegations on the timing of the change remain rather vague and inconsistent.

- (i) In the Statement of Defense, GEOG makes clear that the change had already been made by 10 October 2014:³³²

"Indeed, the truth is that GEOG 'knew', shortly after the Equipment Contract was signed, that the Cold Box does not cool the vapor to -6.252° C. The same information was shared with IEC on October 10, 2014, as an attachment to an email that GEOG sent to IEC 'for the four process scenarios you have requested (pressurized tank vs atmospheric tank and Frame 5 turbine vs LM2500 turbine)'. In all of the drawings attached to that email, the temperature of the first pass of the Cold Box was indicated as -70° C."

- (ii) In the Respondents' Second Post-Hearing Brief, GEOG asserts that "*the first pass temperature of the cold box was only changed on October 13, 2014, at the time the order was placed with Chart.*"³³³
- (iii) GEOG's Technical Report narrates that during the 23 September 2014 Kickoff Meeting, "*the Customer requested some changes based on use of atmospheric LNG storage tanks.*"³³⁴ It continues relating that "*In October, the team worked with the Gas Turbine (GT) team to provide a BOG composition based on the storage information provided by the Customer on October 3, 2014.*"³³⁵ It is unclear to the Arbitral Tribunal what information provided by IEC on 3 October 2014 the Report refers to. In any event, the Report continues: "*The first official revision of the Basis of Design, Rev 1, was issued on October 3, 2014, TM-0008.*"³³⁶ This appears to refer to Exhibit C-883, which is a Basis of Design based on atmospheric and pressurized storage.³³⁷ Finally, the Report states:

*"The BAHX E-0401 datasheet rev 0 TM-0055 was issued for quote on October 7, 2014 and specified that the temperature of the discharge from pass A should be -70°C. However, by using a bypass, a higher temperature was achievable."*³³⁸

³³² SoD, ¶38.

³³³ Rs' PHB2, ¶91.

³³⁴ Appendix A to Exhibit RWS-8, p. 7.

³³⁵ Appendix A to Exhibit RWS-8, p. 7.

³³⁶ Appendix A to Exhibit RWS-8, p. 8.

³³⁷ Exhibit C-883, p. 9, Note 7-1: "*Total LNG storage capacity per unit 30,000 m³ tank will be atmospheric and 2,500 m³ tank will be pressurized*"; see also SoR, ¶105.

³³⁸ Appendix A to Exhibit RWS-8, p. 8.

The Arbitral Tribunal understands this passage to mean that on 7 October 2014 GEOG sent to Chart a datasheet with specifications for the brazed aluminum heat exchanger of the cold box which included a first pass temperature of -70 °C. However, the Arbitral Tribunal has not been able to identify any exhibit corresponding to this datasheet of 7 October 2014.

Finally, the Report mentions later instances in which IEC confirmed its desire to retain flexibility to use both pressurized and atmospheric storage.³³⁹

471. The first mention of a first pass temperature lowered to -70 °C can be found as early as 18 September 2014, when Mr Zhao sent Mr Bergman “*the HP case with changed outlet temperature of Pass A to [-]70C now.*”³⁴⁰ The HMB labeled “Case-100A Rev-2”³⁴¹ was for pressurized storage and it preceded the first time that IEC expressed a wish for being able to use atmospheric storage. The issuance of this HMB does not necessarily mean that GEOG had made a final decision to lower the first pass temperature. But it seems clear that the first time that GEOG considered the possibility of lowering the first pass temperature, this option was unrelated to IEC’s –later– request for atmospheric storage. Perhaps GEOG was considering the lower first pass temperature in order to address the alleged uncertainties surrounding the feed gas composition. Perhaps GEOG was considering it in order to address the alleged issue of the risk of freezing. Or perhaps there was a different reason. The Parties have not sufficiently explained³⁴² the nature of the “*difficulty with the feed gas stream temperature*” mentioned in Mr Zhao’s email of 15 September 2015, and the Arbitral Tribunal is not able to determine whether the lower first pass temperature in the updated HMB of 20 September 2014 was intended to address this difficulty.
472. In any event, it appears that that by 1 October 2014 the first pass temperature had been lowered to -70.1 °C. This follows from the fact that the Chart data sheet of the as-built cold box³⁴³ is dated 1 October 2014 and it already had a first pass temperature of -70.1° C.³⁴⁴ The Arbitral Tribunal is not sure about the relevance of the “*BAHX E-0401 datasheet rev 0 TM-0055*,” which according to the GEOG’s Technical Report “*was issued for quote on October 7 and specified that the*

³³⁹ Appendix A to Exhibit RWS-8, p. 8: “*IE&C stated in a Customer meeting held on October 27, 2014: [...] ‘IE&C would like to have flexibility to be able to use pressurized load out and atmospheric load out. But the setup up and design around the storage tank will be based on pressurized loadout.’*”; p. 17: “*Only on November 14, 2014 IE&C informed GE to finally adjust the design for atmospheric storage.*”

³⁴⁰ Exhibit R-267.

³⁴¹ Exhibit R-234.

³⁴² See SoR, ¶60 and Appendix A to Exhibit RWS-8, p. 6: “*Suppliers where contacted to validate the conceptual design. Chart was contacted on September 03, 2014 and them [sic] on September 15, 2014. Additional conversations related to the design of the cold box were poorly documented but based on an email, CTRL-00043224 [Exhibit R-257], Chart was ‘having a difficulty with the feed gas stream temperature compared to CGC’. Multiple iterations were completed with Chart.*”; and p. 7: “*“*”

³⁴³ Exhibit C-1032.

³⁴⁴ SoR, ¶65.

*temperature of the discharge from pass A should be -70°C.*³⁴⁵ But from the date of the Chart data sheet of the as-built cold box it follows that Chart was already considering a first pass temperature of -70.1 ° C by 1 October 2014.³⁴⁶

473. For the following reasons, it seems very doubtful that IEC's request for atmospheric storage had any impact on the decision to lower the first pass temperature:

- (i) The evidence shows that IEC confirmed to GEOG that they wanted to use both pressurized and atmospheric storage by email of 1 October 2014.³⁴⁷ This is consistent with GEOG's internal emails of 2 October 2014, discussing the possible "*impact of atmospheric storage tanks*" on the cold box design.³⁴⁸ By the time GEOG was having these internal discussions, the Chart data sheet of the as-built cold box had already been issued (on 1 October 2014). It already had a first pass temperature of -70.1 °C and it was based on pressurized storage only. No design changes to the cold box were made after IEC's request for atmospheric storage. It may be true that, as GEOG claims, before the cold box was actually ordered with Chart on 13 October 2014,³⁴⁹ "*[a]ll the previous cases developed by GEOG and Chart were hypotheses, to analyze how the cold box could have worked at different temperatures, in different scenarios, with different gas compositions.*"³⁵⁰ But it also seems clear that the configuration with the lower first pass temperature was the most serious contender as of 1 October 2014, i.e. before IEC requested the dual storage concept.
- (ii) Before the Equipment Contract was signed GEOG provided IEC two process flow diagrams, one using atmospheric storage³⁵¹ and the other using pressurized storage;³⁵² and both had a first pass temperature of around -6.25 °C and only very minor differences in the values for feed gas mass flow rate, condensate mass flow rate and LNG throughput capacity.³⁵³ This does not seem to be consistent with the Respondents' contention that IEC's request to be also able to use atmospheric storage required a lowering of the first pass temperature.

³⁴⁵ Appendix A to Exhibit RWS-8, p. 8.

³⁴⁶ It is difficult to understand why, on 9 October 2014, GEOG still released, under Transmittal TM-0010, a heat material balance with a first pass temperature of -6.252 °C. By 9 October 2014, this HMB dated 11 September 2014 would have been obsolete. However, in the Arbitral Tribunal's view, IEC reads too much into TM-0010 when it alleges that, by sending the one-month old process simulation report, GEOG represented to IEC "*that the Amended BOD with atmospheric as well as pressurized storage [...] did not require an update to Annex (B)*" (SoR, ¶110).

³⁴⁷ SoR, ¶102 (the reference, at Footnote 185, to Exhibit R-261 should be to Exhibit R-265).

³⁴⁸ Exhibit C-889.

³⁴⁹ See Exhibit C-1065.

³⁵⁰ Rs' PHB2, ¶91.

³⁵¹ Exhibit C-43.

³⁵² Exhibit C-44.

³⁵³ SoR, ¶58.

474. But neither is the Arbitral Tribunal able to definitely confirm any of the other competing explanations for the decision to lower the first pass temperature, namely that it was aimed at addressing the alleged uncertainties surrounding the feed gas composition (the other explanation offered by GEOG) or that it was meant to address the issue of the risk of freezing allegedly plaguing the original process design (IEC's explanation).

475. However, as explained above, making final determinations on these issues is not essential to adjudicating IEC's claim for the costs of the HHR. For that task it is sufficient that the Arbitral Tribunal determine whether the process design of the Trains, as built, is defective, and whether the costs of the HHR are damages incurred as a result of GEOG's failure or inability to remedy such defect.

ii. Whether the process design of the Trains, as built, was defective

476. In Clause 17.1 of the Equipment Contract, GEOG warranted "*that the Plants and/or Parts shall be free from Defects in material, workmanship and title and in accordance with any mutually agreed specifications including those set forth in Appendix A.*"

477. IEC explains, with reference to Mr Lumley's expert report, that "*with the contract feed gas and a first pass outlet temperature of -62.35 °C, each Train would produce 680.6 TPD of LNG and 85.3 TPD of unstabilized condensate*" which "*is substantially below the contractually guaranteed 765.1 TPD of LNG and substantially above the 8.562 TPD of condensate.*"³⁵⁴

478. Similarly, IEC argues that "*GE guaranteed that its liquefaction trains — as designed and sold — would produce 765.1 TPD of LNG with the contractual feed gas, GE knew that those trains could not achieve that result without additional, expensive fractionation columns.*"³⁵⁵

479. These allegations rely on Mr Lumley's expert report which explains:

*"The corresponding decrease in LNG production is similarly dramatic. Under the same T-128 parameters (i.e. cold box reconfigured for colder first pass, as per the actual configuration) and using the Contract feed gas, LNG production output is reduced from 765.1 TPD to approximately 680.6 TPD -- a decrease of 11%. (See Appendix 5, HMB results for pressure storage, T-128 parameters and Contract case feed gas spec)."*³⁵⁶

480. IEC and Mr Lumley refer to output being only 680.6 TPD. TPD –tons per day– is a unit of Throughput Capacity. It expresses how much LNG can be produced as a function of *time*.

³⁵⁴ SoC, ¶178.

³⁵⁵ SoC, ¶180.

³⁵⁶ Exhibit CER-3, ¶6.2.14.

481. However, IEC's complaint does not refer to the Trains' throughput *capacity* but to the Trains' *efficiency*, in terms of amount of LNG produced per amount of feed gas used.

482. Mr Pirijns explains this as follows:

"Regarding the LNG production, the output figures reflected at the storage tank on T-128 show no ostensible decrease in LNG production as compared to the Contract case. [...]

*Further scrutiny revealed that what GE had done was to adjust the quantity of daily feed gas supply (increasing it by 3.15 MMSCFD per Train) in order to generate roughly the same LNG production as was reflected in the Contract case. [...] This then enables a comparison with the daily feed gas in T-010 and reveals GE's surreptitious increase in feed gas supply (of 3.15 MMSCFD) to hide the loss in production its flawed process had created (39.43 – 36.28 = 3.15 MMSCFD GE added to the daily feed gas input]."*³⁵⁷

483. In the Statement of Claim, IEC confirms that when it refers to "GE breach[ing] the Equipment Contract by Failing to Deliver Plants capable of producing 0.25 MTPA of LNG"³⁵⁸ it in fact means the breach of the expectation that the Trains "would each produce 0.25 MTPA, the equivalent of 765.1 TPD [...] from 36.28 MMSCFD (million standard cubic feet per day) of feed gas."³⁵⁹

484. Similarly, IEC further explains:

*"Annex B [to Appendix A], at first glance, is a complicated diagram. The Plant Summary table to the left of the page explains that, for each Plant, Claimants will need to provide 36.28 MMSCFD (million standard cubic feet per day) of feed gas in order to generate 765.1 TPD (tons per day) of LNG and 8.562 TPD of unstabilized C3+ condensate. [...] The diagram filling most of Annex B is a high-level summary of how one Plant will process that 36.28 MMSCFD of natural gas into 765.1 TPD of LNG."*³⁶⁰

485. And, in the Claimants' First Post-Hearing Brief, IEC explains again:

*[...] Claimants purchased two Trains that must produce 765.1 TPD of LNG when operating as described in Annex B. Annex B specifies not only the TPD of LNG, but also, *inter alia*, the amount of feed gas required to generate that LNG and the waste condensate that will be a byproduct."*³⁶¹

³⁵⁷ Exhibit CWS-3, ¶¶16.49-16.50.

³⁵⁸ SoC, Heading 4. before ¶324.

³⁵⁹ SoC, ¶324.

³⁶⁰ SoC, ¶92.

³⁶¹ Cs' PHB1, ¶49.

486. And it concludes that “[t]he Trains are not capable of producing the contractually specified 765 TPD of LNG **without substantially increasing the amount of feed gas** and power required, and producing exorbitant amounts of waste condensate.”³⁶²

487. Thus, when IEC and Mr Lumley state that the Trains are only able to produce 680.6 tons per day “with the contractual feed gas,” they mean: with the contractually stipulated 36.28 million standard cubic feet per day of feed gas.

488. IEC’s complaint refers to the ratio of LNG output to feed gas input, i.e. to the efficiency, a parameter from which the time component (“per day”) is eliminated:

$$\text{efficiency} = \frac{680.6 \text{ tons}}{36.28 \text{ million standard cubic feet feed gas per day}}$$

489. IEC’s claim thus implies that GEOG has guaranteed not only an LNG Throughput Capacity of 765.1 TPD but also a certain *efficiency* in terms of amount of LNG produced per amount of feed gas used.

490. IEC’s stance is in effect that GEOG has guaranteed not only a *capacity* value but that it has guaranteed the values of every single variable contained in the heat material balance in Annex B of Appendix A, including the values for feed gas and for unstabilized C3+ condensate.

491. However, it is clear to the Arbitral Tribunal that the Guaranteed Performances are the three values specifically mentioned in the Definition of “Guaranteed Performance” in Clause 1 of the Equipment Contract and indicated in Clause 4.1 of Appendix A, and only those three, namely: (i) LNG Throughput Capacity (ii) Power Consumption and (iii) LNG Quality. These three values are also matched by the three amounts of liquidated damages (per unit of deviation from guaranteed value) stipulated in Clause 25.3 of the Equipment Contract. There is no stipulation of liquidated damages for failure to achieve a certain efficiency in terms of amount of LNG produced per amount of feed gas used or for excess production of unstabilized C3+ condensate. Consequently, such a shortfall in efficiency or excess production of unstabilized C3+ condensate has no impact on the threshold of cumulated liquidated damages above which Clause 25.2(ii)(b) deems there to be an unremediated Defect which gives IEC the remedies provided in Clause 17.4.

³⁶² Cs’ PHB1, ¶137, emphasis added; while IEC mentions in passing an increase of the power required (see also, Cs’ PHB2, ¶31), it does not appear to allege nor does it prove that the Trains do not reach the Power Consumption.

492. Thus, the Arbitral Tribunal finds that a shortfall in efficiency (in terms of amount of LNG produced per amount of feed gas used), and an excess production of unstabilized C3+ condensate, compared to that indicated in the heat material balance in Annex B of Appendix A, is not tantamount to either a Defect in material, workmanship or title or to a deviation from any mutually agreed specification including those set forth in Appendix A.

iii. Whether the costs of the HHR were incurred as a result of GEOG's failure or inability to remedy such defect

493. The Arbitral Tribunal's conclusion that the process design was not defective leads to the dismissal of IEC's claim for the cost of the HHR.

494. But even if one were to consider that the efficiency shortfall rendered the process design defective, the Arbitral Tribunal finds that the cost of the HHR was not incurred to remedy such defect but for unrelated reasons.

495. In the Statement of Claim, IEC explains that “[o]ne of the ways that Claimants have mitigated that design defect — as recommended by GE — is through the procurement and installation of fractionation columns.”³⁶³

496. In the same vein, Mr Pirijns explained that the fractionation columns (i.e., the HHR) were purchased to minimize the efficiency shortfall of the process design:

“GE’s design case was a complete failure, and to avoid freezing GE had lowered the temperature on the first pass, never told us that, and never disclosed what that change would do to production.

e) We Have to Buy Fractionation Columns to Correct GE’s Process Design Flaws:

In the wake of this disclosure, the focus shifted to how the situation could be rectified, and the immediate consensus of all concerned was that one or more fractionation columns should be introduced into the process to achieve better gas separations and minimize the loss in production that would be experienced in the form of increased condensate.”³⁶⁴

497. In contrast, Mr Pagliaro explained that “[d]ue to the several changes in the gas composition and the discovery of the presence of heavy hydrocarbons in the feed gas, in early 2017 the need for the HHR system was clarified.”³⁶⁵ Similarly, Mr Schleicher explained: “In December 2016, IEC requested GEOG to evaluate a heavy feed gas case and to evaluate a Heavy Hydrocarbon

³⁶³ SoC, ¶398.

³⁶⁴ Exhibit CWS-3, ¶¶16.54-16.55.

³⁶⁵ Exhibit RWS-4, ¶30.

*Removal ('HHR') system. [...] IEC requested that GEOG supply a quote to provide a total solution for the HHR system integration into GEOG's existing liquefaction scope of supply."*³⁶⁶

498. The minutes of meeting of 9 December 2016 confirm Mr Schleicher's testimony in this regard. They mention a "Case 1 [...] for rich feed gas ($nC_6 = 0.641\%$)"³⁶⁷ and reflect the following:

"3. IEC confirmed the new feed gas for Plant 1 & 2 and requested the engineering assessment and conceptual design to focus on Case 1 with a Deethanizer.

[...]

5. IEC agreed that a Deethanizer is required and for GE to provide a preliminary process data sheet to start the vendor quotation process

6. IEC also requested a de-butanizer so that the HHC can be separated into LPG.

*7. GE to provide a conceptual design for the fractionation system and preliminary process datasheets for debutanizer and associated equipment. GE to provide a schedule on 12/12/2016."*³⁶⁸

499. The Arbitral Tribunal has not seen a single piece of contemporary evidence (of late 2016 / early 2017) linking the discussions around the HHR to any flaws of the process design. None of the indignation found in Mr Pirijns's narrative about the discovery by IEC of GEOG's machinations³⁶⁹ can be found in the contemporaneous evidence. The Arbitral Tribunal has not seen any exhibit evidencing a complaint by IEC about GEOG's "*purposeful effort to mislead us.*"³⁷⁰ Neither is there a single hint by IEC that GEOG was responsible for the issue that made an HHR necessary. On the contrary, IEC appeared to always accept that it was to itself bear the cost of the HHR:

- (i) On 10 January 2017, IEC wrote to GEOG: "*[...] I am hoping to hear back from you on price and schedule for the three options we discussed. During the meeting you indicated you were going out to suppliers based on the PFD information.*"³⁷¹
- (ii) On 12 January 2017, IEC wrote to GEOG: "*The key thing I / Werner have been asking for is Schedual [sic] / Cost? Where are you with this.*"³⁷²

³⁶⁶ Exhibit RWS-6, ¶12.8.

³⁶⁷ Exhibit C-636, p. 31.

³⁶⁸ Exhibit C-636, p. 31.

³⁶⁹ Exhibit CWS-3, ¶¶16.43-16.54.

³⁷⁰ Exhibit CWS-3, ¶16.51.

³⁷¹ Exhibit C-268.

³⁷² Exhibit C-269.

- (iii) On 26 January 2017, IEC wrote to GEOG: “Since our meeting before Christmas IEC have been waiting on some indication of cost and schedule for the scope of work to add the heavy treatment unit as proposed by GE.”³⁷³
- (iv) Indeed, in early February 2017, GE submitted budgetary proposals for an HHR.³⁷⁴ In his first witness statement, Mr Pirijns commented on the price under the assumption that it will have to be borne by IEC.³⁷⁵

500. Indeed, IEC went ahead and purchased the HHR itself, from CryoSys.

501. Exhibit 1 to the Contract to purchase the HHR from CryoSys states at Clause 2.2:

*“Buyer has communicated to Seller, and Seller is aware of the fact that **the purchase of the Equipment is necessary in order to address issues relating to the quality of the feed gas** to be utilized in the Plants Buyer is presently constructing in Nigeria (and purchased from GE), **which were not originally contemplated at the time Buyer purchased the Plants from GE**. Given this, the provision of the Equipment from Seller is now a critical factor in bringing the Plants online in as timely a fashion as possible.”*³⁷⁶

502. This piece of evidence provides strong additional confirmation for GEOG’s position that the HHR was rendered necessary by changes in the gas composition.

503. Finally, IEC’s expert did not deny that the actual feed gas that is being used by Greenville (i.e. the one referenced to order the HHR from CryoSys)³⁷⁷ renders an HHR indispensable regardless of the cold box configuration.³⁷⁸

504. In light of the evidence the Arbitral Tribunal cannot but conclude that the HHR was not purchased with the aim of remedying any defects of the delivered Trains but to address issues with the changed feed gas.

(2) Whether the procedure for claims under Clause 17.4(i) of the Equipment Contract was followed

(a) IEC’s position

505. With regard to GEOG’s “*defense that Claimants did not comply with Clause 17.4 because they did not identify the defects or negotiate for compensation*” IEC asserted that “*Claimants*

³⁷³ Exhibit C-271.

³⁷⁴ Exhibits C-273 and C-274.

³⁷⁵ Exhibit CWS-3, ¶¶16.73-16.74.

³⁷⁶ Exhibit C-275, emphasis added.

³⁷⁷ See Exhibit C-275, p. 29.

³⁷⁸ Tr. Day 6, 157:2-12.

*incessantly complained about the defects, holding meetings (including the Florence meetings) and sending dozens of emails and letters regarding their existence and BHGE's failure to address them.*³⁷⁹ IEC points in this regard at Exhibits C-136, C-147 and R-103 and at Mr Pirijns's testimony.³⁸⁰ Moreover, IEC argues that “[i]n similar circumstances, courts have held that a party need not pursue negotiation further.”³⁸¹

(b) GEOG's position

506. In the Statement of Defense, GEOG argues that “[u]nder Clause 17.3, in case of defect, ‘Seller, at its expense shall correct’ it” and that IEC has the right to recover direct damages under Clause 17.4 once GEOG fails or is unable to remedy a Defect within a reasonable time.³⁸²
507. At the Hearing in Milan, GEOG argued that the procedure required by Clause 17.4 before IEC may recover indirect damages was not followed, namely the unsuccessful negotiation of a potential equitable compensation for IEC within a term of 30 days.³⁸³

(c) The Arbitral Tribunal's analysis

508. Clause 17.3 of the Equipment Contract stipulates that in case of a defect appearing within the Warranty Period IEC shall promptly notify GEOG in writing and make the Trains available for correction/inspection. Then GEOG shall, at its option, repair the defect or make available the necessary replacement parts or components.
509. Pursuant to Clause 17.4, if GEOG fails or is unable to remedy a defect within a reasonable time,
 - (i) there shall be a thirty-day negotiation period for the parties to agree on an equitable compensation for IEC and, if the parties do not reach such agreement, IEC shall have the right to recover its direct damages incurred as a result of GEOG's failure or inability to remedy the defect;
 - (ii) in the event that due to GEOG's failure or inability to remedy the defect IEC is deprived of a substantial part of the benefit of the Trains, IEC may terminate the Equipment Contract in accordance with Clause 28.2.
510. IEC has not alleged that it has notified GEOG of a defect which would trigger GEOG's obligation to rectify such defect as per Clause 17.3.

³⁷⁹ Cs' PHB1, ¶135.

³⁸⁰ Cs' PHB1, ¶135. Footnote 187.

³⁸¹ Cs' PHB1, ¶135.

³⁸² SoD, ¶165.

³⁸³ Tr. Milan, 143:19-144:4.

511. Indeed, as explained above,³⁸⁴ until the filing of the Statement of Claim, IEC appeared to always accept that it was to itself bear the cost of the HHR. Mr Pirijns described the discovery that “*GE’s design case was a complete failure, and to avoid freezing GE had lowered the temperature on the first pass, never told us that, and never disclosed what that change would do to production.*”³⁸⁵ And he went on to assert that “[i]n the wake of this disclosure, the focus shifted to how the situation could be rectified, and the immediate consensus of all concerned was that one or more fractionation columns should be introduced into the process to achieve better gas separations and minimize the loss in production that would be experienced in the form of increased condensate.”³⁸⁶ But the Arbitral Tribunal has not been able to identify any written communication –formal or informal– in which IEC complained about such “complete failure” of GEOG’s process design or in which it invited GEOG to “rectify the situation.” There is no communication that could be deemed compliant of the requirement of Clause 17.3.

512. Since no obligation for GEOG to rectify a defect was triggered by a communication by IEC (written or otherwise), the reasonable time period for GEOG to remedy the defect, as per Clause 17.4, never commenced not did it elapse.

513. And, in turn, the thirty-day negotiation period never commenced not did it elapse.

514. Thus, IEC’s right to recover its direct damages incurred as a result of GEOG’s failure or inability to remedy the defect never arose.

515. IEC’s argument that “[i]n similar circumstances, courts have held that a party need not pursue negotiation further”³⁸⁷ goes astray. The cases invoked by IEC involve the principle that “[o]nce it becomes clear that one party will not live up to the contract, the aggrieved party is relieved from the performance of futile acts, such as conditions precedent.”³⁸⁸ In one of the cited decisions, which involved a contractual requirement to negotiate, the Court found:

“Based on the circumstances alleged here, it is reasonably conceivable that the Buyer will succeed in showing that they reasonably concluded from the Sellers’ response letter that any negotiations would have been futile. [...] Thus, one reasonably could question the Sellers’ own belief that negotiations would have been anything other than an exercise in futility. For all of these reasons, I conclude that the apparent lack of

³⁸⁴ ¶499.

³⁸⁵ Exhibit CWS-3, ¶16.54.

³⁸⁶ Exhibit CWS-3, ¶16.55.

³⁸⁷ Cs’ PHB1, ¶135.

³⁸⁸ Exhibits CLA-209, *568; Exhibit CLA-210, *8; see also Exhibit CLA-211, *11.

negotiations between the parties does not provide a basis to dismiss the Buyer's breach of contract claim."³⁸⁹

516. In contrast, here IEC has not even put GEOG on notice of the alleged breach. Hence, IEC cannot show that the preliminary steps provided for in the Equipment Contract as a prerequisite for claiming direct damages would have been futile.

(3) Causality: Whether IEC would have had to purchase an HHR in any event

(a) IEC's position

517. In the Statement of Reply, IEC updated its direct damages figures.³⁹⁰ One of the changes was explained by IEC's witness Mr Helsen as follows:

*"Claimants recognize (as mentioned by Mr. Hillier) that the HHR system is also being used in connection with Train 3. I have therefore allocated two-third of the total costs incurred to Trains 1 and 2, resulting in a revised amount claimed of \$13,697,562.29."*³⁹¹

(b) GEOG's position

518. GEOG's expert Mr Hillier has argued that IEC required an HHR in any event, namely to operate Train 3, and thus "*GEOG is only responsible for the incremental increase in cost for the equipment supply above what is needed for a single train (train 3).*"³⁹²

(c) The Arbitral Tribunal's analysis

519. In the Arbitral Tribunal's view, the fact that the HHR was required to operate Train 3 (which was in fact the first train to enter into operation) negates the causal link between the alleged defect of Trains 1 and 2 and the expenses in connection with the HHR. IEC would have incurred these expenses in any case.

520. The Arbitral Tribunal does not agree with Mr Helsen that it is appropriate to apportion the cost in equal shares among the three trains. Rather, it agrees with Mr Hillier that GEOG can only be responsible for the expenses which IEC incurred but would not have incurred but for GEOG's

³⁸⁹ Exhibit CLA-211, *12.

³⁹⁰ SoR, ¶551.

³⁹¹ Exhibit CWS-10, ¶32. While Mr Van Den Broeke asserted at the Hearing that "*each train has its own HHR*" (Tr. Day 2, 12:13-14), IEC itself has reduced its claim in line with the testimony of its other witness Mr Helsen that the HHR whose costs IEC is claiming for is being used for all three trains. Hence, the Arbitral Tribunal understands that the Mr Van Den Broeke was mistaken in this regard.

³⁹² Exhibit RER-16, ¶4.3.3.5.c.

breach, i.e. the incremental increase in cost for above what is needed for Train 3. However, IEC has not provided this figure.

(4) Quantum: Whether the investment is offset by the return on investment

(a) IEC's position

521. In the Claimants' Second Post-Hearing Brief, IEC acknowledges that the investment incurred for the HHR is to some extent offset by the return on investment and it explains that "*both the significant cost of the HHR system and the incremental higher price of LPG compared to LNG, were incorporated into Mr. Lapuerta's analysis and is visible in his model.*"³⁹³

522. IEC also points at Mr Lapuerta having testified "*that the HHR system 'gives about a five percent return on the investment, which is lower than the return that a reasonable investor would demand for a facility like this'*"³⁹⁴ and that "*the project's original projected internal rate of return was over 30%, which is consistent with Mr Helsen's testimony as to the rate of return previously earned by Mr Van den Broeke in his bitumen business and appropriate for an investment in Nigeria.*"³⁹⁵ IEC concludes that "*[b]y offering less than a reasonable return, the HHR system reduces the value of the Rumuji investment.*"³⁹⁶

(b) GEOG's position

523. In the Respondents' First- Post-Hearing Brief, GEOG posits that "*[i]t is now known that the HHR [...] provides a return on the investment (the investment being its cost) by selling LPG, which Mr. Lapuerta stated was around 5%.*"³⁹⁷ In this regard, it argues that "*[g]iven the evidence on the record about the immediate viability of LPG as a product for sale domestically, and the much higher price that customers are willing to pay for it, a 5% return even for one year with three trains operating at full capacity sounds unrealistically low*"³⁹⁸ and that "*this is without considering any savings from the HHR which permitted Greenville to purchase the current feed gas from Total without any cleaning before providing it to the Rumuji Plant.*"³⁹⁹

³⁹³ Cs' PHB2, ¶85.

³⁹⁴ Cs' PHB2, ¶86, quoting from Tr. Day 10, 97:11-16.

³⁹⁵ Cs' PHB2, ¶88, with reference to Exhibit C-831, Table A5 and Tr. Day 6, 80:10-14.

³⁹⁶ Cs' PHB2, ¶¶84-89.

³⁹⁷ Rs' PHB1, ¶101.

³⁹⁸ Rs' PHB1, ¶102.

³⁹⁹ Rs' PHB1, ¶102.

524. GEOG argues that “[t]he admission that the HHR conveys additional financial benefits to the Claimants, and the lack of any transparency around the financial valuation, is sufficient reason for the Tribunal to deny any claim for the costs associated with purchasing it.”⁴⁰⁰

525. With regard to IEC’s complaint that it is being forced into the LPG business, GEOG argues as follows:

“If IEC was really not interested in producing LPG, we would wonder why they bought Train 3 in 2016 and why they chose gas supplied by Total, instead of that of the so-called ‘parent plant’.

Needless to say, the Claimants’ argument that the production and commercialization of LPG was not included in IEC’s initial business plan does not make the difference, because any businessman would update its business plan in order to sell a valuable product even though it did not consider to sell it initially. And this is actually what Mr. Van den Broeke confirmed he is doing.”⁴⁰¹

526. In the Respondents’ Second Post-Hearing Brief, GEOG adds that “[a]ccording to the Lapuerta Reports, the production of LPG – and, consequently, the procurement and installation of the HHR – was part of the Claimants’ original business plan, regardless of the cold box configuration.”⁴⁰²

(c) The Arbitral Tribunal’s analysis

527. It is undisputed among the Parties that the HHR provides a positive return on investment, i.e. that the total returns are expected to be greater than any associated costs. Mr Lapuerta has quantified the HHR’s return on investment at about 5%.⁴⁰³

528. This means that any costs are more than offset by the benefits or, in Mr Lapuerta’s words, that “[i]n an accounting sense it [i.e. the price premium on the sale of LPG versus LNG] can recover the depreciation [of the HHR].”⁴⁰⁴ This excludes a finding that the costs of the HHR are direct damages to IEC.

529. Mr Lapuerta has argued that the project’s risk profile is such that the discount rate is 13%. And IEC has asserted that an appropriate rate or return for a project like this and, more generally, for an investment in Nigeria is over 30%.⁴⁰⁵ Mr Lapuerta and IEC find that, in contrast, the HHR

⁴⁰⁰ Rs’ PHB1, ¶104.

⁴⁰¹ Rs’ PHB1, ¶¶112-113.

⁴⁰² Rs’ PHB2, ¶81; see also Rs’ PHB2, ¶¶82-84.

⁴⁰³ Tr. Day 10, 96:24-25.

⁴⁰⁴ Tr. Day 10, 97:11-12.

⁴⁰⁵ Cs’ PHB2, ¶88.

*"gives about a five percent return on the investment, which is lower than the return that a reasonable investor would demand for a facility like this."*⁴⁰⁶ While this may be so, the alleged shortfall in profit does not amount to direct damages recoverable under Clause 17.4.

530. Even assuming that but for the defect in GEOG's process design IEC would not have chosen to purchase an HHR the conclusion remains the same, namely that the cost of purchasing the HHR is offset by the sales of LPG at a higher price than LNG. But, in actuality, IEC would have had to purchase an HHR in any event for Train 3.⁴⁰⁷ And it also appears that it would also have had to purchase an HHR in order for any of the trains to process the feed gas which IEC is currently using.⁴⁰⁸

c. External Engineering Support for Commissioning

(1) IEC's position

531. In the Statement of Claim, IEC explains that *"[a]s GE's engineering problems have continued to mount throughout this project, Claimants have incurred, and continue to incur, significant engineering consulting costs."*⁴⁰⁹ It posits that these costs are direct damages and it refers to Mr Helsen's first witness statement wherein these expenses, totaling USD 2,660,037.96, are itemized as of 28 February 2019.⁴¹⁰

532. Mr Helsen's first witness statement breaks down these costs as follows:

"Since BHGE failed to deliver on their contractual promises, IEC/Greenville have retained various consulting engineering consulting experts to resolve the technical issues that are preventing Trains 1 and 2 from operating. The current cost of these consultants is US\$ 2,660,037.96. These consultants include:

- a. Lisbon Group. IEC/Greenville retained the Lisbon Group to replace GE in assisting Claimants with the mechanical completion of Trains 1 and 2. The total charges from Lisbon Group to date are US\$ 1,628,307.82.*
- b. Softec. IEC/Greenville retained Softec to assist with important testing, including stress testing of pipes, after GE refused to provide critical information concern its own testing results. IEC/Greenville have incurred US\$ 1,031,730.14 in fees for Softec's work."*⁴¹¹

⁴⁰⁶ Tr. Day 10, 97:13-16; Cs' PHB2, ¶86.

⁴⁰⁷ See above, ¶519.

⁴⁰⁸ See above, ¶503.

⁴⁰⁹ SoC, ¶399.

⁴¹⁰ SoC, ¶399.

⁴¹¹ Exhibit CWS-5, ¶55.

533. These damages are updated with the Statement of Reply⁴¹² and Mr Helsens's second witness statement:

We have had to continue retaining both companies since the time of my first witness statement. The current fees we have paid (as of September 30, 2019) are:

- *Lisbon Group: \$2,539,589.54*
- *Softec: \$1,198,864.07*

*I have included the summary of the invoices received from Lisbon Group and Softec in Appendix K for a total amount of \$3,738,453.61. This appendix (and excel file) contains also the supplier accounts of both companies showing that all invoices received have been paid. The individual invoices of Lisbon and Softec are to be found respectively in Appendix O and Appendix P.*⁴¹³

(2) GEOG's position

534. In the Respondents' First Post-Hearing Brief, GEOG acknowledges that “[i]t is undisputed that IEC was assisted in its stress analysis by a company that is also a usual supplier to GEOG, called Softec.”⁴¹⁴ But it also points out that the evidence submitted by IEC does not allow to link the costs to the stress analyses performed on Trains 1 and 2:

“Costs: for this matter, like for many others, there is simply **no way** for GEOG to identify any item of costs in IEC’s submissions, witness statements, expert reports, or any other document produced in the course of the arbitration. Attached to Mr. Helsen’s Second Witness Statement, under the item ‘External Engineering Support for Commissioning’, IEC produced some invoices received from Softec, totaling \$1,198,864.07.

The description of this cost item is self-explanatory: neither GEOG nor GE Nigeria were responsible for the commissioning of the Trains. Therefore, these are costs that IEC should have incurred anyhow, regardless of the alleged breaches of the Respondents and/or defects of the Trains. And just as important is the fact that the documents themselves make it impossible to parse out the costs related to the stress analysis performed by Softec on the Trains.

Of the 17 pages of Appendix P to Mr. Helsen’s Second Witness Statement there is no invoice exclusively related to the Trains. The invoices relate to two purchase orders

⁴¹² SoR, ¶551.

⁴¹³ Exhibit CWS-10, ¶¶35-36; see also Cs' PHB1, ¶138.

⁴¹⁴ Rs' PHB1, ¶123.

issued by IEC in April and June 2018 – of which we have no copy – with the following descriptions:

- i. ‘Technical assessment of process and Lay-out ergonomic arrangement of Train 1-2 (and Train 3 when specifically indicated)’. This has nothing to do with the pipe stress analysis, and there was no attempt by any of IEC’s various experts to link it to the stress analysis.*
- ii. ‘Process assessment of LNG Plant located in Rumuji – Nigeria – relevant to the entire plant and including also the assessment of the flare system and LNG transportation chain up to final user’. This is utterly confounding since it is expressly related to ‘the entire plant,’ i.e., all of the scope of work outside of GEOG’s contractual supply, and no explanation of which parts may be related to the piping of the Trains (if at all).*
- iii. Other invoices indicating the presence of Softec’s personnel on site for, as an example, ‘piping stress analysis and supports check Trains 1-2, Train 3, and BOP (hot oil system, boil-off gas and LNG’. How much of this was for the BOP, which was beyond GEOG’s scope? IEC does not say.”⁴¹⁵*

535. And GEOG states, with reference to its letter of 6 December 2019,⁴¹⁶ that “[d]ue to this complete lack of information on costs related to the piping stress analysis, GEOG accepted to cover the costs of \$100,000, based on its best estimate of what the reasonable costs would be.”⁴¹⁷

536. With regard to the Lisbon Group, IEC quotes from the Appendix to the Master Service Agreement between the Lisbon Group and IEC⁴¹⁸ to point out:

[...] the Lisbon Group was engaged by IEC in October 2017 to provide support for the ‘start-up, operator training and operational support services. For 2 LNG production trains which are nearing mechanical completion’, i.e. activities which have always been outside of the GEOG Entities’ scope of work.

If it is even possible, the 25 invoices attached as Appendix O to Mr. Helsen’s Second Witness Statement are even more confusing (and confused). A few examples,

i. Invoice #1 is related to activities carried out in October 2017 for ‘site visit, plant status, pre-commissioning, commissioning and start-up’;

⁴¹⁵ Rs’ PHB1, ¶¶129-131; see also Rs’ PHB2, ¶92.

⁴¹⁶ Exhibit R-314.

⁴¹⁷ Rs’ PHB1, ¶133.

⁴¹⁸ File “IEC LG Executed MSA 31102017” in Appendix O to Exhibit CWS-10, p. 4.

- ii. Invoice #3 deals with 'project integration', 'MR charging design', 'commissioning' and also includes the item 'GE Corrective Action', related to the 'Heavy Hidrocarbon Management', consisting of a 'call with Peter Gutowski';*
- iii. Invoice #9 deals, again, as all the others, with 'start-up and commissioning support', including 'BOP Automation', and similar items completely outside of the GEOG Entities' scope of work.*⁴¹⁹

(3) Arbitral Tribunal's analysis

(a) Lisbon Group

- 537. IEC alleges that it "retained the Lisbon Group to perform work on the Trains that BHGE failed to do."⁴²⁰ Mr Helsen's description is slightly different: "IEC/Greenville retained the Lisbon Group to replace GE in assisting Claimants with the mechanical completion of Trains 1 and 2."⁴²¹
- 538. In order for IEC to be able to claim for these costs under Clause 17.4 of the Equipment Contract, it would need to show, among other things, that the Lisbon Group was retained to remedy defects exhibited by the Trains delivered by GEOG.
- 539. However, the scope of works of the Lisbon Group, as described in the Appendix to the Master Service Agreement between Lisbon and IEC,⁴²² contradicts IEC's contention that the costs it claims from GEOG are for such activities performed by the Lisbon Group within GEOG's scope. The Master Service Agreement lists two activities in the Lisbon Group's scope of works. Activity 1 is described as the Lisbon Group "provid[ing] start-up support, and operator training" and it is stated that Lisbon "will arrive at [sic] during pre-commissioning, and provide operational continuity after operational handover." It is further stated that the work will be performed by "commissioning personal [sic]." Activity 2 is "Follow-on Operational Support," which includes "Remote Monitoring and Troubleshooting," "Safety Assurance," "Reliable, Effective Operation," "Fact-based Operational Improvement" and "Production Benchmarking."
- 540. It thus appears that the Lisbon Group was only involved in post-Mechanical-Completion activities, namely commissioning/start-up activities and follow-on operational support, which are all outside of GEOG's scope.
- 541. The Lisbon Group's invoices contain some scattered language that could be perhaps understood to include works in GEOG's scope, e.g. the task description "GE Corrective Action."⁴²³ However,

⁴¹⁹ Rs' PHB1, ¶¶152-153; see also Rs' PHB2, ¶93.

⁴²⁰ Cs' PHB1, ¶138.

⁴²¹ Exhibit CWS-5, ¶55(a).

⁴²² File "IEC LG Executed MSA 31102017" in Appendix O to Exhibit CWS-10, p. 4.

⁴²³ Invoices Nos. 2-8 and 17-21 in Appendix O to Exhibit CWS-10.

the overwhelming majority of activities invoiced for seem to clearly be in IEC's scope. This includes a large number of references to pre-commissioning, commissioning, and start-up⁴²⁴ and also many explicit references to balance of plant activities.⁴²⁵

542. The evidence submitted by IEC is not sufficient to allow the Arbitral Tribunal to allocate the activities invoiced for by the Lisbon Group to works within or without GEOG's scope of remediation works.
543. The only attempt at such allocation made by IEC –or its experts or witnesses– is Mr Lapuerta's, who has attributed one third of this cost item to Train 3: "*Costs related to the Lisbon Group are multiplied by two thirds (2/3), reflecting an allocation to [sic] 1/3rd to Train 3 (HHR related).*"⁴²⁶ However, the Arbitral Tribunal sees no valid reason to follow such arbitrary allocation.
544. In conclusion, IEC has failed to prove that the Lisbon Group costs it claims are for activities of remedying defects of the Trains delivered by GEOG.

(b) Softec

545. IEC has submitted invoices by Softec⁴²⁷ containing references to works on "Train 3," the "BOP," the "Entire Plant," and the "LNG transportation chain up to final user." Neither the explanations provided by Claimants nor the invoices themselves allow ascertaining that the works performed by Softec were to remedy defects in the Trains supplied by GEOG. In particular, IEC has not submitted (as they did with the Lisbon Group) the agreements on which the invoices are based. In fact, the invoices do make references to different specific purchase orders and scopes of work which, however, are not in the arbitration file.
546. IEC's witness, Mr Helsen, has acknowledged at the Hearing that the evidence submitted by IEC does not allow an allocation of the amounts invoiced by Softec to activities on Trains 1 and 2, or on Train 3 or the balance of plant.⁴²⁸
547. Even the invoices that seem to be exclusively referred to "Piping Stress analysis," for EUR 90,000 each,⁴²⁹ cannot be granted, since it is not clear whether they refer to the stress testing of Trains 1 and 2 or of Train 3.⁴³⁰

⁴²⁴ Invoices in Appendix O to Exhibit CWS-10, *passim*.

⁴²⁵ E.g., Invoice No. 4 in Appendix O to Exhibit CWS-10, pp. 3, 9.

⁴²⁶ Exhibit C-1176, Sheet A2, Cell C47.

⁴²⁷ In Appendix P to Exhibit CWS-10.

⁴²⁸ Tr. Day 6, 64:14-68:7.

⁴²⁹ Invoices 035/2019 and 054/2019 in Appendix P to Exhibit CWS-10.

⁴³⁰ As explained by Mr Pirijns at the Hearing, Softec also did stress testing for Train 3 (Tr. Day 4, 36:12-17:1); see also Rs' PHB1, ¶125.

- 548. In conclusion, IEC has failed to prove that the Softec costs it claims are for activities of remedying defects of the Trains delivered by GEOG.
- 549. However, since GEOG has accepted to cover the “*costs related to the piping stress analysis*” in an amount of USD 100,000,⁴³¹ this amount is to be granted.

d. Investment for installation of a variable frequency drive

(1) IEC's position

- 550. In the Statement of Claim, IEC alleges that from the beginning of the project there was a difference of opinion between GEOG and IEC on the suitable mechanism to start-up the MRC motors. IEC posits that while GEOG identified three possible start-up mechanisms to integrate the power plant with the Trains –an autotransformer, a soft starter, and a VFD– IEC “*cautioned GE[OG] that a VFD was required, and that the soft starter solution would not work.*”⁴³²
- 551. IEC submits that following a six-month dispute as to whether GEOG was responsible for providing the start-up mechanism the issue was settled on 8 July 2015 in Change Order Request No. 27. IEC contends that thereby GEOG “*agreed to provide the start-up mechanism for the MRCs*” and that “*GE chose to implement its start-up obligation by using the cheaper of the two potentially viable solutions, the soft starter solution.*”⁴³³
- 552. IEC explains that this issue is linked to the selection of the power plant. While IEC had already made a deposit with Wärtsilä for a power plant, the settlement in Change Order Request No. 27 included the agreement that IEC would purchase the power plant from Jenbacher, a company of the GE group.⁴³⁴
- 553. IEC states that since mid-2018 GEOG has unsuccessfully attempted to start the MRCs with the soft starters,⁴³⁵ and that at the February 2019 meeting in Rumuji GEOG admitted that the soft starters would not work but VFDs were required instead.⁴³⁶
- 554. IEC also indicates that VFDs are long lead items that typically require about ten months to acquire⁴³⁷ and that at the time the Statement of Claim was filed GEOG had not yet placed the

⁴³¹ Rs' PHB1, ¶133; see also Rs' PHB1, ¶219(d). The Arbitral Tribunal notes that in its letter of 6 December 2019 GEOG conceded “[t]he reasonable cost of additional piping supports for Trains 1 and 2, exclusive of installation costs” (Exhibit R-314). This item is related to, but different from, stress testing. However, the Arbitral Tribunal considers that GEOG's later statement made in Rs' PHB1, ¶133, supersedes and takes precedence over that in the 6 December 2019 letter.

⁴³² SoC, ¶206.

⁴³³ SoC, ¶207; see also Cs' PHB1, ¶69.

⁴³⁴ SoC, ¶¶120, 207; see also SoR, ¶¶139-140.

⁴³⁵ SoC, ¶208; see also SoR, ¶143.

⁴³⁶ SoC, ¶209; see also Cs' PHB1, ¶72.

⁴³⁷ SoC, ¶210.

order for the VFDs.⁴³⁸ Neither had IEC, but it anticipated the cost to be approximately USD 3 million.⁴³⁹

555. In the Statement of Reply, IEC contends that in Change Order Request No. 27 “*GE/BHGE also agreed [...] that if IEC consummated the purchase of GE/BHGE’s Jenbacher power plant, GE/BHGE guaranteed that its starting system would work.*”⁴⁴⁰ In this regard, it explains:

“The reason this guarantee was given is because IEC had contracted with Wärtsilä for VFDs to start the MRC motors, and was concerned that if GE/BHGE chose a cheaper solution, it would not work. Mr. Pirijns explained in his first witness statement that ‘we always thought that start-up of the MRC motors would require a VFD, rather than a soft-starter. GE/BHGE repeatedly disagreed, insisting that their favored, cheaper solution would provide the needed integration. [...]’ ”⁴⁴¹

556. IEC also points out that later, in March 2016, GEOG again assured that the soft starter would work.⁴⁴²

557. At the time the Statement of Reply was filed, IEC had already ordered the VFD. Mr Helsen quantifies the expenses incurred in this regard and provides an estimation of the installation costs:

In considering our options, we were able to come up with a less expensive solution in which we only needed to purchase a single VFD for both Trains 1 and 2, instead of one for each Train. Based on the contracts that we have already signed as well as estimates of local works needed on site, the total cost is \$1,025,130.89, which is summarized in Appendix Q.

We ordered the VFD from ZF Group Ltd. in China for a cost of \$541,500. We also needed to purchase a Filter Cabinet for a cost of \$62,000. [...]

Other costs that we have already incurred and paid in connection with the order and delivery of the VFD are:

- *Ningo Liyyou Group Co. (containers for transporting the VFD) - \$13,401*
- *TUV Rheinland (inspection services) - \$1,740*
- *Yangzhou Shenyang International (transportation services) - \$22,465.35*

⁴³⁸ SoC, ¶211.

⁴³⁹ SoC, ¶400.

⁴⁴⁰ SoR, ¶141; see also SoR, ¶¶143-151.

⁴⁴¹ SoR, ¶142.

⁴⁴² SoR, ¶145, second bullet point, referring to Exhibit C-248; see also Cs' PHB1, ¶70.

- *Biname (insulator)* - \$458.17
- *Helmacab Belgie (transformator)* - \$4,935.28
- *Pennyred Logistics (Freight fork lift)* - \$1,722.09
- *ZF Group Ltd. (air cooler and interpreter)* - \$40,840
- [...]

We have also estimated the cost for installation of the VFD once it arrives at Rumuji, as well as the costs to install a required firefighting system [...] as follows:

- *Firefighting system* - \$52,500
- *E&I Contract including earth work* - \$108,038
- *Civil works contract* - \$138,889
- *Materials, including concrete* - \$33,475
- *Standing unit 3HP* - \$3,167⁴⁴³

(2) GEOG's position

558. In the Statement of Defense, GEOG maintains that the issue with the soft-starter “is a direct consequence of IEC’s failure to properly address the importance of the complete integration of the scopes of supply of the subcontractors (of which GEOG is one of several) with IEC’s BOP [...].”⁴⁴⁴ GEOG explains that once it was determined that start-up equipment would be needed for the MRC motors (because the Rumuji Plant would not be connected to the grid but would run in power island mode, i.e. it would be powered by its own power plant),⁴⁴⁵ “GEOG provided IEC with quotes for three different options of start-up equipment (a VFD for approximately \$3.9 million, a Soft Starter for around \$1.1 million and an autotransformer for around \$290,000).”⁴⁴⁶ GEOG explains that while the parties disagreed about whose scope the start-up equipment was,⁴⁴⁷ it “worked to identify a cheaper alternative solution (the Soft Starter), which was finally accepted by IEC through the change order COR-27 dated July 3, 2015.”⁴⁴⁸

⁴⁴³ Exhibit CWS-10, ¶¶39-42; see also Cs’ PHB1, ¶139.

⁴⁴⁴ SoD, ¶64.

⁴⁴⁵ SoD, ¶65.

⁴⁴⁶ SoD, ¶66.

⁴⁴⁷ SoD, ¶¶65-67.

⁴⁴⁸ SoD, ¶67.

559. GEOG submits that “[u]ltimately, in 2018 the Soft Starter solution was found ineffective and it was determined that instead a VFD was required”⁴⁴⁹ and it argues that IEC could have avoided this by coming earlier to the conclusion that a VFD was needed.⁴⁵⁰

560. In Respondents’ First Post-Hearing Brief, GEOG posits that “[t]here is no doubt that the decision to procure a soft-starter as a ‘soft-start solution’ to the Trains was taken by IEC, with no involvement of GEOG, between December 2014 and July 2015.”⁴⁵¹

561. Nonetheless, GEOG explains that “in the interest of shortening the proceedings, GEOG reduced its counterclaim against IEC by \$541,500, the amount of the price that IEC paid to procure the VFD.”⁴⁵² However, it explains that it rejects to bear the costs of installation because “the installation of equipment has never been in the scope of work of either GEOG or GE Nigeria.”⁴⁵³

(3) Arbitral Tribunal’s analysis

(a) Whether GEOG is liable for the effectiveness of the soft starter solution

562. GEOG does not deny but confirms that “in 2018 the Soft Starter solution was found ineffective and it was determined that instead a VFD was required.”⁴⁵⁴

563. Thus, the Arbitral Tribunal only needs to decide whether GEOG is liable for the effectiveness of the soft starter solution.

564. The Arbitral Tribunal does not need to decide whether the start-up mechanism for the MRCs was within the scope of the Equipment Contract, as originally subscribed.⁴⁵⁵ What is clear is that by virtue of Change Order Request No. 27, of 3 July 2015, GEOG undertook to “absorb the cost of MR start-up system (‘soft start’) with J620-Power Gen.”⁴⁵⁶ As acknowledged by GEOG, it did not merely agree to bear the cost but “[t]he supply of the soft-starter was added to GEOG’s scope of work.”⁴⁵⁷

565. Moreover, the said Change Order No. 27 mentioned: “The starter is consideration of a Jenbacher product – if IEC wants non-Jenbacher product GE cannot guarantee such would be compatible

⁴⁴⁹ SoD, ¶68.

⁴⁵⁰ SoD, ¶68.

⁴⁵¹ Rs’ PHB1, ¶115.

⁴⁵² Rs’ PHB1, ¶118; see also Rs’ PHB2, ¶94.

⁴⁵³ Rs’ PHB1, ¶118.

⁴⁵⁴ SoD, ¶68; see also GEOG’s letter of 21 May 2019: “During the recent motor solo run test different constraints have surfaced making the soft starter solution not fitting for purpose anymore” (Exhibit C-162, p. 2).

⁴⁵⁵ See in this regard, SoD, ¶65, Exhibit R-161, pp. 3-4.

⁴⁵⁶ Exhibit C-15, p. 2.

⁴⁵⁷ Rs’ PHB1, ¶116; see also SoR, ¶141: “It is undisputed that, as part of that agreement, GE/BHGE agreed to provide an MR start-up system.”

& may require additional cost beyond the (\$1.2M) – which if necessary would be to IEC's account.”⁴⁵⁸ IEC understands this to mean that “GE/BHGE also agreed in that letter agreement that if IEC consummated the purchase of GE/BHGE's Jenbacher power plant, GE/BHGE guaranteed that its starting system would work”⁴⁵⁹ In contrast, GEOG rejects responsibility for the choice of the soft starter and it argues that when it agreed to supply the soft-starter IEC had already decided to opt for this solution,⁴⁶⁰ a decision which it took “with no involvement of GEOG, between December 2014 and July 2015.”⁴⁶¹

566. The Arbitral Tribunal fails to understand GEOG's contention that it was no way involved in the selection of a soft-starter, when GEOG itself acknowledged in the Statement of Defense that in October 2014⁴⁶² it “provided IEC with quotes for three different options of start-up equipment (a VFD for approximately \$3.9 million, a Soft Starter for around \$1.1 million and an autotransformer for around \$290,000),”⁴⁶³ and that GEOG itself identified the soft-starter solution which was then accepted in Change Order Request No. 27.⁴⁶⁴
567. And while it does not follow *directly* from the aforequoted passage from Change Order Request No. 27 that GEOG guaranteed the compatibility of the soft-starter (there is only a reference to the compatibility of the *Jenbacher power plant*), the Arbitral Tribunal finds that GEOG's warranty under Clause 17 of the Equipment Contract extends to the soft-starter by virtue of the soft-starter being added to GEOG's scope of delivery. Thus, GEOG is liable for the soft-starter being fit for purpose. This is the more so, considering that GEOG guaranteed the compatibility of the Jenbacher power plant and, thus, it guaranteed the effectiveness of the complete solution consisting of all three elements: power plant, soft-starter and MRC.
568. Having established that GEOG was liable to rectify the issue of the ineffective soft-starter, it is not necessary for the Arbitral Tribunal to ascertain whether the sentence “*The methodology of the startup system will be analyzed further,*” contained in Appendix A, means that GEOG was required to engineer the methodology for starting the MRC Motors, as argued by IEC.⁴⁶⁵
569. Finally, the Arbitral Tribunal notes that after commencement of this arbitration GEOG conceded paying USD 541,000 for the cost of purchasing a VFD.⁴⁶⁶ This does not entail an

⁴⁵⁸ Exhibit C-15, p. 2.

⁴⁵⁹ SoR, ¶141.

⁴⁶⁰ Rs' PHB1, ¶116.

⁴⁶¹ Rs' PHB1, ¶115.

⁴⁶² See Exhibit R-158.

⁴⁶³ SoD, ¶66.

⁴⁶⁴ SoD, ¶67.

⁴⁶⁵ Cs PHB1, ¶68; see in this regard also Claimants' Opening Statement, Tr. Day 1, 79:6-80:11.

⁴⁶⁶ Exhibit R-314; Rs PHB1, ¶118, ¶219(d).

acknowledgement that GEOG was responsible for supplying a VFD to replace the soft-starter, but it is certainly not inconsistent with GEOG being in fact responsible.

(b) Whether the procedure for claims under Clause 17.4(i) of the Equipment Contract was followed

570. The Respondents' revisions to Claimants' draft minutes of the 12-13 February 2019 meeting in Rumuji reflect the following:

*"GEOG asked IEC if they have any preferred/previosuly identified VFD solution. IEC replies their preference for 1 VFD for each Train because of additional constraints on the power plant. The possibility to use VFD of T1 to start up T2 and vice-versa has to be included. IEC stated that they prefer a one-stop-shop solution for the whole MV EM+VFD system, i.e. the supplier of the VFD to be the same as the EMs."*⁴⁶⁷

571. And they also state: *"GEOG to identify a viable long-term sustainable solution asap."*⁴⁶⁸

572. This suggests that both IEC and GEOG understood by no later than February 2019 that it was incumbent upon GEOG to remedy the ineffectiveness of the soft-starter solution. Since there is no doubt that GEOG was on notice of the defect, the Arbitral Tribunal considers that a further written notification as per Clause 17.3 of the Equipment Contract was superfluous. If one were to consider that an additional express written notification was necessary, then such notification would have been given with IEC's letter of 28 February 2019:

"IEC/Greenville has consulted top-tier European consultants on the subject and there is consensus that only a suitable VFD will enable to start-up and shut-down the Trains.

GEOG asked IEC/Greenville if they have any preferred/previosuly identified VFD solution. IEC/Greenville replies their preference for 1 VFD for each Train because of additional constraints on the power plant. The possibility to use VFD of T1 to start up T2 and vice-versa has to be included. IEC/Greenville stated that they prefer a onestop-shop solution for the whole MV EM+VFD system, i.e. the supplier of the VFD to be the same as the EMs.

GEOG must identify a viable long-term sustainable solution for this critical problem and inform IEC/Greenville as soon as possible;

*All the costs, including the necessary Load Bank, to achieve the full functionality of the Power Plant shall be at GEOG's cost"*⁴⁶⁹

⁴⁶⁷ Exhibit C-243, p. 6.

⁴⁶⁸ Exhibit C-243, p. 6.

⁴⁶⁹ Exhibit C-186, p. 4.

573. Also in the Statement of Claim IEC expressed its expectation that GEOG rectify this issue: “*The Trains are not operational until GE procures and installs the required VFDs.*”⁴⁷⁰

574. And again on 5 May 2019 IEC inquired: “*Have you ordered the VFD’s, and if not why not? When can we expect them to arrive?*”⁴⁷¹

575. GEOG replied on 21 May 2019:

“*GEOG therefore consider the supply of the VFD an addition to our scope. GEOG does not consider the VFD to be within its scope of supply under the Equipment Agreement as our equipment supply CONTRACT.IEC.EQUP.APPDX.A, at 3.1 does not list any such equipment and thus requires either:*

- a. *A Change Order [...]*
- b. *That both GEOG and IEC mutually agree issue [sic] is a disputed change order and it becomes part of the current arbitration process as a dispute to be resolved, subject to IEC supplying GE with the [c]ontractually required Standby Letter of Credit and Parent Company Guarantee, in accordance with IEC obligations under Clauses 7.7 and 7.8 of the Equipment Contract and payment to GEOG of milestones due for Mechanical completion of trains 1 and 2.*”⁴⁷²

576. The Arbitral Tribunal considers that with this letter GEOG declined to, and thus failed to, remedy the defect, thereby initiating the thirty-day negotiation period of Clause 17.4(i) of the Equipment Contract.

577. On 22 May 2019, IEC reminded GEOG “*about the other defects where no progress is reported like, amongst others, VFD, [...]*”⁴⁷³ And on 8 July 2019 IEC replied to GEOG’s letter of 21 May 2019 that “[t]hese requests, in the context of this situation (involving your admitted mis-engineering on all these aspects) were abusive and a transparent effort to deflect your failure to remedy these admitted BHGE defects.”⁴⁷⁴

578. On 10 July 2019, IEC wrote to GEOG:

“*Given your demobilization, and the utter lack of concrete action by BHGE/GEOG over the course of the last 4 months on the critical issues identified during the February 2019*

⁴⁷⁰ SoC, ¶210; the expectation that GEOG rectifies this issue was also voiced by Mr Pirijns: “*The commissioning of the Trains will now be further delayed for an indefinite period (perhaps another year) while GE locates and puts in place the appropriate equipment to make the interface (including a VFD) to start up the system. VFDs are long lead items, and typically require at least 10 months to procure, ship and install.*” (Exhibit CWS-3, ¶15.22).

⁴⁷¹ Exhibit R-170, p. 4.

⁴⁷² Exhibit R-162, p. 2.

⁴⁷³ Exhibit R-157, p. 1.

⁴⁷⁴ Exhibit R-155, p. 2.

meetings (which you had agreed to promptly rectify), you have left IEC/Greenville with no choice other than to complete Trains 1 and 2 ourselves. We cannot wait any longer for BHGE/GEOG to do what it is obliged to do (and what it has promised to do in February 2019 and on many prior occasions). IEC/Greenville will thus remediate, complete, commission and start-up Trains 1 and 2, with all costs, expenses and losses being added to the claim already presented.

Critical items that remain uncompleted by BHGE/GEOG include:

(i) Ordering and delivery of the VFDs required for startup;

[...]"⁴⁷⁵

579. The Arbitral Tribunal finds that the procedure established in Clause 17.4(i) was followed and, thus, IEC is entitled to recover from GEOG its direct damages resulting from GEOG's failure or inability to remedy the defect.

(c) Damages

580. As regards the different items claimed by IEC, the Arbitral Tribunal agrees, in general, with IEC's contention that the direct damages for which GEOG owes compensation are (i) the cost of purchasing the VFDs, (ii) the cost of the structure that is now required to house it, (iii) the cost of installation.⁴⁷⁶

581. The Arbitral Tribunal does not accept GEOG's objection that "*the installation of equipment has never been in the scope of work of either GEOG or GE Nigeria.*"⁴⁷⁷ GEOG's obligation is not to supply the VFDs as part of the scope of delivery under the Equipment Contract but to fully remedy a defect (i.e. the ineffective soft starter) under the Warranty, i.e. it includes performance of (or bearing the cost of) any actions necessary to achieve conforming Trains.

582. While IEC's—or Mr Helsen's—explanations of the different cost items claimed for could be more detailed, GEOG has not asserted that any of the cost items claimed for by IEC are unnecessary for the transportation and/or installation of the VFDs. On the contrary, GEOG has acknowledged with respect to the complete item "*Investment in VFD (\$1,025,130)*" that "*this is the only item of cost that the Claimants support with documents.*"⁴⁷⁸ GEOG's objections pertain to whether and to what extent it is obligated to remedy the defect, not to the relevance and quantum of the damages items put forward by IEC.

⁴⁷⁵ Exhibit R-156, pp. 1-2.

⁴⁷⁶ SoR, ¶151.

⁴⁷⁷ Rs' PHB1, ¶118.

⁴⁷⁸ Rs' PHB2, ¶94.

583. Consequently, all cost items of investment for installation of VFDs claimed by IEC, totalling USD 1,025,130, are to be granted.

e. Additional costs of remedying defects: cost of replacement of the MRC Motor electrical cables

584. In the Statement of Claim, IEC “reserve[d] the right to claim for the additional costs that they have and will incur repairing, reconditioning and otherwise remediating the issues with Trains 1 and 2” and it explained that “[t]he damage resulting from these issues remains to be determined.”⁴⁷⁹

585. Mr Helsen’s second witness statement, submitted with the Statement of Reply, explained that “[t]he work being carried out by Claimants to remediate defects in Trains 1 and 2 is still ongoing and so the amount incurred has not yet been calculated.”⁴⁸⁰

586. In the Claimants’ First Post Hearing Brief, IEC stated that “Claimants still face additional costs caused by the defects described during these proceedings,” but it did not quantify such costs but explained that it “request[ed] a declaration that BHGE is liable for the cost of remediating all additional defects, subject to quantification.”⁴⁸¹

587. It is clear that these additional costs of remedying defects include the cost of replacement of the MRC Motor electrical cables, for which GEOG has conceded to pay USD 250,000.⁴⁸² However, despite GEOG’s concession, IEC has not made a specific monetary claim in this regard.

588. However, IEC did request that the Arbitral Tribunal “grant[...] such other and further relief as the Arbitral Tribunal deems just and appropriate.”⁴⁸³

589. As a matter of principle, the Arbitral Tribunal is reluctant to award, on the basis of such a generic request, a relief that has not been specifically requested. The reason for this reluctance is that the award might breach the due process rights of the opposing party who did not have a reason, and, thus, an opportunity, to make its case with respect to the specific claim.

590. However, in this case, GEOG has explicitly and specifically conceded the amount of USD 250,000 “to replace the allegedly undersized cables.”⁴⁸⁴ Thus, granting such relief would in no way be detrimental to GEOG’s due process rights.

591. Thus, the Arbitral Tribunal grants IEC the amount conceded by GEOG.

⁴⁷⁹ SoC, ¶403.

⁴⁸⁰ Exhibit CWS-10, ¶67.

⁴⁸¹ Cs' PHB1, ¶140.

⁴⁸² Exhibit R-314; Rs' PHB1, ¶161, Footnote 200.

⁴⁸³ Cs' PHB1, ¶235(o).

⁴⁸⁴ Rs' PHB1, ¶161, Footnote 200.

3. Damages associated with delayed operation (Clause 6.6(ii) / Clause 17.4(i) of the Equipment Contract)

592. In addition to liquidated damages for the delayed delivery, IEC claims damages associated with the delayed operation of the Trains. The Equipment Contract provides for different remedies depending on the period of delay:

- (i) To the extent the damages are caused by a delay in delivery during the period between the date on which liquidated damages started accruing and the Delay Limit Date, Clause 6.5 of the Equipment Contract establishes that “[t]he payment of *Liquidated Damages* shall be *Buyer's sole and exclusive remedy and Seller's exclusive liability for any failure to achieve or deliver a Plant (or any portion thereof) by the Delay Limit Date.*”
- (ii) To the extent the damages are caused by a delay in delivery during the period subsequent to the Delay Limit Date, Clause 6.5 of the Equipment Contract establishes that IEC “*shall have the right to pursue and exercise the rights and remedies in Clause 6.6.*” Clause 6.6 provides that IEC may recover its direct damages (or it may terminate the Agreement, which IEC has not sought to do).
- (iii) To the extent the damages are caused by GEOG being delayed in remedying defects (“*fail[ing] or [being] unable to remedy a Defect within a reasonable time*”)⁴⁸⁵ subsequent to delivery, Clause 17.4 provides that IEC may recover its direct damages (or, under certain conditions, terminate the agreement, which IEC has not sought to do).

593. Thus, damages due to a delay in delivery in the period between 1 October 2015 (for Train 1) / 1 January 2016 (for Train 2) and 28 March 2016 fall under Clause 6.6(ii), and damages due to a delay in remedying defects in the period subsequent to 28 March 2016 fall under Clause 17.4(i).

594. Since both clauses provide that IEC may recover its direct damages, it is not necessary to distinguish between the two periods, provided it is established that all elements of both provisions are fulfilled.

⁴⁸⁵ Clause 17.4 of the Equipment Contract.

a. **Whether the delayed operation was caused by the delayed delivery and/or the delayed remediation of defects**

(1) **IEC's position**

595. According to IEC, absent GEOG's breaches, operation of the Trains would have commenced in January 2016.⁴⁸⁶ However, at the date of the Hearing (i.e. December 2019) the Trains had not commenced operation.

596. IEC has submitted two delay-analysis expert reports issued by Mr Lancaster who has explained:

"In my opinion, the critical delays to this project can be characterised as follows:

- At the outset, there were delays to the delivery of modules both in terms of the Contract dates and considering COR19,*
- These delivery delays have then been significantly compounded due to the incomplete and poor quality supply of the modules when they were delivered. I have shown within section 4 of this report, the ongoing nature of the general module deliveries that have extended into 2019, this incomplete and poor quality delivery of the modules has undermined the purpose of modularised delivery as I detailed within section 4 of my First Expert Report,*
- In addition to the general incomplete and poor quality delivery issues of the modules, three (3) significant and on-going issues are still causing delay to the project, these being the MV cable replacement, the VFD, the finalisation of the stress analysis and additional pipe support requirements. The potential rectification of the defective Flare piping design is also an ongoing issue with the potential to cause critical delay.*

*In my opinion these are the issues that have caused critical delay to the project. I do not find that it is possible to determine exactly when the critical path would have transferred from the general delays to the trains caused by late, incomplete and poor quality module supply, to the parallel ongoing issues of the MV Cable, VFD, and Pipe Stress analysis, but effectively these three (3) items are only the on-going components of this incomplete and late supply and have been separated only as they are yet to be resolved."*⁴⁸⁷

⁴⁸⁶ According to Mr Helsen (Exhibit CWS-5, ¶35); or in June 2016, according to the more conservative date used by Mr Lapuerta (Exhibit CER-4, ¶¶91-92); see also Exhibit C-683.

⁴⁸⁷ Exhibit CER-7, ¶¶123-124.

597. Thus, after delivery of the modules, which the Arbitral Tribunal determined to have occurred on 28 March 2016, Mr Lancaster identifies four critical delay events on the critical path to achieving operation of the Trains:⁴⁸⁸

- (i) The incomplete and piecemeal delivery of the modules.⁴⁸⁹
- (ii) The need to replace the soft-starter with a VFD to power the MRC motors.⁴⁹⁰
- (iii) The defective pipe supports due to stress issues.⁴⁹¹
- (iv) The undersized MRC motor cables.⁴⁹²

598. IEC's allegations regarding the need to replace the soft starter with a VFD have been summarized above.⁴⁹³

599. With respect to the incomplete and piecemeal delivery of the modules, IEC argues in the Statement of Claim that after the late delivery of the Trains the project "*has been stymied by ongoing discoveries of missing equipment, defective engineering, defective fabrication of the modules and obstructive behavior by GE.*"⁴⁹⁴ It alleges that it developed its scope of the project as timely as GEOG's performance allowed⁴⁹⁵ and that its contractors timely installed the modules once they arrived.⁴⁹⁶ However, it complains that "*[I]literally thousands of parts — including hundreds of valves; hundreds of instruments; many hundreds of nuts and bolts, pipe supports and U-bolts; electrical cables; cable tray materials; heat tracing; insulation and more — were missing from what was supposed to be a 'fully-modularized' train.*"⁴⁹⁷ And it contends that "*the missing (and changing) parts for Train 1 have caused interminable further delay.*"⁴⁹⁸

600. Concerning the MRC motor cables, IEC alleges the following:

"Claimants have been alerting GE to the risk that it had under-engineered the electrical cables throughout the Trains. GE routinely rebuffed these concerns.

⁴⁸⁸ Exhibit CER-1, §7.9.2.

⁴⁸⁹ Exhibit CER-1, §7.9.1.1.

⁴⁹⁰ Exhibit CER-1, §7.9.1.3.

⁴⁹¹ Exhibit CER-1, ¶754, fifth bullet point.

⁴⁹² Exhibit CER-1, §7.9.1.2.

⁴⁹³ §X.B.2.d(1).

⁴⁹⁴ SoC, ¶160.

⁴⁹⁵ SoC, ¶¶116-129.

⁴⁹⁶ SoC, ¶¶149-156.

⁴⁹⁷ SoC, ¶134.

⁴⁹⁸ SoC, ¶138.

In August 2018, during GE's failed efforts to start up the motor to the critical mixed refrigerant compressors ('MRCs'), the concern was realized when the cables overheated and a fuse holder in the cable box melted.”⁴⁹⁹

601. Further, IEC alleges that GEOG admitted during the February 2019 meeting in Rumuji that the MRC motor cables were undersized⁵⁰⁰ but subsequently failed to replace those cables.

602. IEC posits that until the undersized cables are replaced the Trains cannot be operational,⁵⁰¹ as the undersized cables pose a major safety hazard.⁵⁰² In this regard, it explains:

“The use of undersized cables is a major safety hazard. As the Exponent Report explains, ‘Undersized cables can pose a serious safety risk, as they can overheat, melt, and cause fire.’ In the context of a natural gas and LNG facility, electrical and fire hazards pose explosion risks and are especially unacceptable.”⁵⁰³

603. With regard to the pipe supports, IEC alleges that when GEOG claimed Mechanical Completion on Train 1 in mid-2018, which meant that operations with gas would soon begin, IEC had doubts about the safety of the piping systems and thus requested copies of the stress analyses performed by GEOG during the engineering of the Trains.⁵⁰⁴

604. It further submits that GEOG did not respond and thus IEC retained Softec to investigate the critical piping systems. IEC states that Softec's preliminary report identified numerous areas of overstressed piping and under-supported structural members on critical lines.⁵⁰⁵

605. IEC alleges that in December 2018 GEOG released a summary evaluation that it had just completed and in which it “admitted that over thirty ‘*modifications on the pipe supports have to be performed and implemented before the full operation of this plant*’ including several instances in which ‘major steel would need to be added to add a new support.’ ”⁵⁰⁶

606. IEC points out that GEOG still did not provide any stress analysis from when it engineered the Trains.⁵⁰⁷

⁴⁹⁹ SoC, ¶¶191-192.

⁵⁰⁰ SoC, ¶194.

⁵⁰¹ SoC, ¶195.

⁵⁰² SoC, ¶193.

⁵⁰³ SoC, ¶193.

⁵⁰⁴ SoC, ¶199.

⁵⁰⁵ SoC, ¶200.

⁵⁰⁶ SoC, ¶201, quoting from Exhibit C-242.

⁵⁰⁷ SoC, ¶202.

607. It further posits that during the February 2019 meeting in Rumuji, GEOG confirmed that 37 piping systems on each Train were improperly stressed and required remediation by GEOG before the Trains could be operational.⁵⁰⁸

608. In this regard, IEC explains:

“Excessive stress on piping in a process plant can be catastrophic. As the Exponent Report explains, ‘Failure to appropriately support heavy runs of piping that contain flanged connections will impose undue bending moments on the connections and produce nonuniform gasket loading, which can result in gasket failure and leakage of process fluids.... Leakage of [the process fluids in an LNG plant] could result in an explosion and/or fire with potentially catastrophic consequences to workers and equipment.’ ”⁵⁰⁹

609. In the Statement of Reply, IEC addresses in some detail the opinion by GEOG’s expert, Mr Middleton, that the cables were properly sized.⁵¹⁰ Likewise, it addresses the opinion by GEOG’s expert, Mr Linwood, on the piping stress issue.⁵¹¹

610. In the Claimants’ First Post-Hearing Brief, IEC challenges GEOG’s argument that IEC was concurrently delayed with its scope of works:

“Dr. Lancaster explained that as BHGE fell behind, Claimants reasonably began pacing their work and using the float created by BHGE’s delays to mitigate losses. For example, because feed gas contracts include onerous Take-or-Pay obligations, Claimants intentionally delayed committing to a feed gas contract until BHGE claimed to be ready for the Trains to receive gas. [...]”⁵¹²

611. In the Claimant’s Second Post-Hearing Brief, IEC denies GEOG’s allegation that IEC deliberately delayed project execution, and it alleges in this regard, among others:

“[...] Claimants invested over \$500 million to get the plant running and pay more each day to run it. In mid-2017, because BHGE said it would be ready, Claimants committed to a take-or-pay gas contract to receive gas starting in 2018 (resulting in the recent invoices from Total for nearly \$60 million). And they have been paying operating expenses for years. There are no savings to Claimants from dragging their feet, only costs and massively lower cash flows.”⁵¹³

⁵⁰⁸ SoC, ¶203-204.

⁵⁰⁹ SoC, ¶198, quoting from Exhibit CER-2, p. 19.

⁵¹⁰ SoR, ¶¶198-210; see also Cs’ PHB1 ¶¶77-79.

⁵¹¹ SoR, ¶¶112-137; see also Cs’ PHB1 ¶¶58-66.

⁵¹² Cs’ PHB1, ¶34.

⁵¹³ Cs’ PHB2, ¶8; see also ¶¶9, 46-56.

(2) GEOG's position

612. In the Statement of Counterclaim, GEOG alleges that when the modules where delivered, IEC faced issues and delays regarding the works that were in its scope, i.e. the foundations for the Trains, the installation of the Trains and the construction of the balance of plant.⁵¹⁴

613. GEOG acknowledges that “*some non-conformities in the Trains were discovered that required replacement of certain cables and valves, as well as the bellows*” and that “[t]echnically these issues caused a slippage to the Trains’ completion schedule.”⁵¹⁵ But it argues that “*due to IEC’s BOP scope of work still being open, which was in the critical path, the replacement activities did not result in an actual delay.*”⁵¹⁶

614. Moreover, GEOG submits that IEC cannibalized the Trains, i.e., that it IEC removed parts from the Trains 1 and 2 to use them in Train 3.⁵¹⁷

615. In the Statement of Defense GEOG expands on its argument that IEC was concurrently delayed and refers to the findings in Mr Blinkhorn’s expert report.⁵¹⁸

616. With regard to the MRC motor cable issue, GEOG puts forward that “*most of the power cables were correctly sized, but incorrectly installed by IEC, and those that were too small have already been replaced by GEOG.*”⁵¹⁹

617. Concerning the piping supports, GEOG contends that “*GEOG’s pipe support design changes were limited to 38 out of approximately 700 lines and ‘a corrective design for the 37 defective pipe lines could have been implemented quickly’ had IEC agreed to a pipe support modification review meeting with GEOG.*”⁵²⁰

618. In the Respondents’ First Post-Hearing Brief, GEOG alleges that the MRC motor cable issue did not prevent IEC from completing the Trains long time ago and that “*IEC’s electrical expert Mr. Wright, also testified that [...] IEC could always have operated Trains 1 and 2 without any risk of overheating simply by operating at less than full capacity, as they are now doing with Train 3.*”⁵²¹

619. With respect to the piping support issue, GEOG alleges, among others, that once the issue was identified, it could have been solved rather swiftly but IEC prevented GEOG from implementing the required modifications:

⁵¹⁴ SoCC, ¶¶87-96, 103-107.

⁵¹⁵ SoCC, ¶122.

⁵¹⁶ SoCC, ¶122.

⁵¹⁷ SoCC, ¶¶157-159.

⁵¹⁸ SoD, ¶208; Exhibit RER-14; see also Rs’ PHB1, ¶86.

⁵¹⁹ SoD, ¶63(i).

⁵²⁰ SoD, ¶63(ii), quoting from Exhibit RER-14.

⁵²¹ Rs’ PHB1, ¶7.

[...] It is known that Softec started its analysis in the summer of 2018 and completed it in the course of that year. Finally, it is known that the implementation of the remedial actions – both those identified by GEOG along with those identified by Softec – would require ‘around three months’ for the procurement of the materials – that are already available at the Rumuji Plant – and a period between two to six weeks for installation.

And it is known that, starting from December 2018, when this arbitration was already pending, IEC prevented GEOG from implementing any modifications to the pipes. Once again, the evidence regarding the progress of IEC’s remedial actions shows that it appears timed so that the Trains will not be in operation before the anticipated end of this arbitration.”⁵²²

620. GEOG posits that IEC was in fact not interested in starting up the entire Rumuji Plant because there was not sufficient demand for its LNG product⁵²³ and, in particular, because it had failed to secure the Kaduna power plant as a customer.⁵²⁴

(3) The Arbitral Tribunal’s analysis

621. The Parties’ delay experts invoke various delay events with a potential impact on the critical path towards operation of the Trains.

622. The first group of alleged events potentially caused a delayed delivery of the Trains:

- (i) Gas composition changes (IEC).
- (ii) Late delivery of the ICP (IEC/GEOG).

623. The second group of alleged potential delay events are general delays to installation, commissioning and start-up of the Trains:

- (i) Incomplete and piecemeal delivery of the modules (GEOG).
- (ii) Concurrent delays in IEC’s scope of work (IEC).
- (iii) Cannibalization of the Trains (IEC).
- (iv) Bolt changes (IEC/GEOG).

624. The third group of alleged potential delay events are issues with specific equipment affecting the operability of the Trains:

- (i) Soft starter / VFD to power the MRC motors (IEC/GEOG).

⁵²² Rs’ PHB1, ¶¶126-127.

⁵²³ Rs’ PHB1, ¶¶7-13.

⁵²⁴ Rs’ PHB1, ¶¶14-18, 109.

- (ii) Pipe supports and stress analysis (IEC/GEOG).
- (iii) MRC motor cables (GEOG).
- (iv) HHR (IEC).
- (v) Flare issues (IEC/GEOG).

625. The fourth group of alleged potential delay events are issues beyond the Trains themselves, i.e. the balance of plant (IEC).

626. The Arbitral Tribunal now analyses whether each of the above delay events in fact occurred, whose responsibility they were and what impact they had on the critical path towards operation of Trains 1 and 2.

(a) Events that could cause a delayed delivery of the Trains

i. Gas composition changes

627. As explained above,⁵²⁵ GEOG's claim for an extension of the Delivery Date was untimely and failed to meet the formal requirements of Clauses 6.3 and 6.2 of the Equipment Contract. Thus, GEOG is barred from invoking the alleged gas composition changes as a justification for the delayed manufacturing and delivery of the Trains.

ii. Late delivery of the ICP

628. The Arbitral Tribunal has determined that the ICP was within GEOG's scope of supply.⁵²⁶ Thus, GEOG may not invoke any delays in supply of the ICP as an excuse for the delayed delivery or operation of the Trains.

(b) General delays to installation, commissioning and start-up of the Trains

i. Incomplete and piecemeal delivery of the modules

629. Since Mr Lancaster interprets the Equipment Contract in such manner that he finds that the Trains were never delivered,⁵²⁷ his analysis does not distinguish between the period before delivery of the last modules on 28 March 2016 and the period thereafter.⁵²⁸ However, his expert

⁵²⁵ §X.B.1.c(3).

⁵²⁶ §X.B.1.d(3).

⁵²⁷ See, e.g. Exhibit CER-7, ¶126.

⁵²⁸ See in this regard, Tr. Day 8, 114:5-15: "Q Okay. But do you see a distinction between a warranty claim and a late delivery claim? A I mean, obviously they are different in nature because one would mean the part hasn't come and the other one means the part has come but it's defective. But in terms of delay, it's got basically the same effect because you've still got a plant effectively without a functioning component. So I don't differentiate in terms of delay. If you've got a contractual difference, I think that's for somebody else."

opinions on the incomplete and piecemeal delivery of the modules and the impact thereof on the critical path towards operation of the Trains are relevant, regardless of whether and when the Trains are considered delivered under the Equipment Contract.

630. It is clear that delivery of the Trains was delayed until 28 March 2016,⁵²⁹ and that this delay is GEOG's responsibility.⁵³⁰

631. It is also clear that after delivery of the modules there has been a steady flow of additional shipments. This was acknowledged by GEOG's expert, Mr Hillier, who in his expert report listed shipments during the period between 28 March 2016 (shipment H11) and 8 November 2016 (shipment H18).⁵³¹ But Mr Hillier also acknowledged that there were shipments beyond that point,⁵³² although he points at Mr Pagliaro's testimony that "*[s]ince the beginning of [his] involvement in the project, the deliveries were generally minor in nature and / or related to replacement items.*"⁵³³

632. IEC's expert, Mr Lancaster, has identified shipments reaching into February 2019⁵³⁴ and he has explained in this regard,

"The shipping documents clearly identify that the shipments have been continual and ongoing from October 2015 through to January 2019, with items still outstanding as of the date of this report. A delay to full shipment of Train 1 of some forty-three (43) months (June 2015 to January 2019)

*I believe this is indicative of design and quality issues in addition to simple late deliveries, requiring replacement and additional components to be shipped."*⁵³⁵

633. GEOG acknowledged that "*[d]uring this period [from the equipment delivery to November 2016], GEOG had also identified several issues in its own equipment that had to be rectified at site.*"⁵³⁶ Mr Pagliaro confirmed that after his involvement in the project in October 2016 "*[m]any minor parts were shipped to rectify warranty issues.*"⁵³⁷

634. Thus, the Arbitral Tribunal finds that not only was the delivery of the Trains delayed until 28 March 2016 but during almost three years after delivery of the last modules GEOG was engaged in rectification tasks which required the shipment of minor items or replacement items.

⁵²⁹ See above, ¶436.

⁵³⁰ See above, ¶433.

⁵³¹ Exhibit RER-16, ¶8.3.4.3.e.

⁵³² Exhibit RER-16, ¶8.3.4.3.

⁵³³ Exhibit RWS-7, ¶32.

⁵³⁴ Exhibit CER-1, ¶¶416-423; Exhibit CER-7, ¶¶467-476.

⁵³⁵ Exhibit CER-1, ¶¶447-448.

⁵³⁶ SoCC, ¶97.

⁵³⁷ Exhibit RWS-7, ¶35.

ii. Concurrent delays in IEC's scope of work

635. With regard to the "Site Works Post Delivery Date," Mr Blinkhorn states the opinion "that at a minimum concurrent delay existed through the currency of the Project with delay events that may be considered to be the responsibility of both Parties."⁵³⁸

636. And he objects to Mr Lancaster's opinion that the incomplete and piecemeal delivery of the modules was the factor driving the delayed installation, commissioning and start-up of Trains 1 and 2 for failing to take account of such concurrent delay:

"He does not appear to account for deficiencies by IEC that would at a minimum contribute to the delay. For example IEC deficiencies and other reasons for delay would include:

- (a) *Damage to modules / equipment in shipping;*
- (b) *Loss of materials due to deficient storage, including theft for example;*
- (c) *Damage to materials caused by, for example, improper storage, lack of maintenance;*
- (d) *Poor performance by IEC's installation contractor;*
- (e) *Changes in scope; and*
- (f) *Site not ready to accept material.*"⁵³⁹

637. However, the only analysis performed by Mr Blinkhorn with regard to such "IEC deficiencies" concerns whether the foundations, on which the modules were to be installed on site, were delayed.⁵⁴⁰

638. Moreover, Mr Blinkhorn mentions that "[a] further outstanding and critical issue relates to the 'complete plant flare network design and verification and IEC's plant control system appear to be still unsolved'"⁵⁴¹

iii. Cannibalization of Train 2

639. With regard to the cannibalization of the Trains, IEC explained in its letter of 9 April 2019:

"i) In fact, as you have been told and know, nothing was removed from Train 1, at all.

"ii) 43 minor 'commodity-type' items were shifted from Train 2 to Train 3. Those items, listed on the attached schedule, have all been re-acquired by IEC/Greenville. Most have been reinstalled on Train 2, and the remainder will be in the coming days.

⁵³⁸ Exhibit RER-14, ¶4.5.12.

⁵³⁹ Exhibit RER-14, ¶5.3.3.1; see also ¶5.2.6.4(iv).

⁵⁴⁰ See below, ¶¶649-655.

⁵⁴¹ Exhibit RER-14, ¶4.4.23.

iii) In any case, none of these create an impact on the completion, pre-commissioning or commissioning of the Trains, particularly Train 2.”⁵⁴²

640. Mr Blinkhorn states that he is “*not aware that the ‘cannibalised equipment’ has in fact been replaced.*”⁵⁴³ However, Mr Lancaster indicates that he was able to confirm during a site walk in June 2019 that all items had in fact been replaced.⁵⁴⁴

iv. Bolt changes

641. It is undisputed that GEOG delivered the galvanized bolts and that it employed local labour with its supervision to replace the black bolts.⁵⁴⁵

642. The Arbitral Tribunal finds that, after some discussion with IEC,⁵⁴⁶ GEOG had agreed to replace the bolts. This is evidenced in an email from IEC to GEOG summarizing the points discussed two days earlier wherein it is stated:

“Following IEC’s presentation of some examples of the unsatisfactory performance by GE (supply and technical support), which have already led to considerable delays, GE agreed to:

– replace all rusted studs and bolts (and gaskets)

*[...]*⁵⁴⁷

v. Critical path impact

643. The Arbitral Tribunal is persuaded by the evidence on the record that the delay in delivery of the modules and the subsequent protracted rectification of defects have slowed down IEC’s installation, commissioning and start-up of the Trains and thus, it delayed the Trains’ operation as long as the deliveries lasted, i.e. February 2019.

644. Mr Lancaster has explained that “*poor design, poor/incomplete fabrication and poor material and quality management have led to the on-going, incomplete shipments the requirement for replacement parts, and slow construction.*”⁵⁴⁸ And he pointed out:

“Late and incomplete modularisation (late and piecemeal shipments) have significantly impacted the project. These issues then mixed with poor quality design and fabrication which has resulted in rework (e.g. bolts, late stress analysis), have all impacted the

⁵⁴² Exhibit R-166, p. 2.

⁵⁴³ Exhibit RER-14, ¶5.2.5.6.

⁵⁴⁴ Exhibit CER-7, ¶107.

⁵⁴⁵ Exhibit R-4a, ¶X.2.2.15.

⁵⁴⁶ See Exhibit CER-1, ¶¶347-357.

⁵⁴⁷ Exhibit C-424.

⁵⁴⁸ Exhibit CER-1, ¶754, second bullet point.

*project. These types of issues create delay and highly disrupted works on site. The fact that deliveries are still being made into 2019 illustrates the extent of this issue.*⁵⁴⁹

645. GEOG acknowledged that “*some non-conformities in the Trains were discovered that required replacement of certain cables and valves, as well as the bellows*” and that “[t]echnically these issues caused a slippage to the Trains’ completion schedule.”⁵⁵⁰
646. The only specific allegation of concurrent delays pertaining to installation, commissioning and start-up of the Trains, concurrent to the incomplete and piecemeal delivery of the modules, is that the foundations on which the Trains were to be installed on site were delayed.
647. Except for this issue, which is examined below,⁵⁵¹ none of the above-listed issues that could potentially impact the critical path are substantiated in any detail by Mr Blinkhorn. Neither does he provide an assessment of the specific impact such issues might have had on the critical path. Likewise, Mr Blinkhorn does not provide any information on the time impact of the alleged “*outstanding and critical issue relat[ing] to the ‘complete plant flare network design and verification and IEC’s plant control system’*”⁵⁵²
648. Mr Lancaster, when asked at the Hearing whether the performance of poor quality work that can affect how the modules are installed would cause a delay later on in the project, replied: “*it’s one thing writing bullet points on a letter, but what exactly are we talking about and how much time has it cost? I can’t analyze bullet points.*”⁵⁵³ The Arbitral Tribunal faces the same difficulty in evaluating most of the supposed concurrent delays to installation, commissioning and start-up of the Trains alleged by GEOG.
649. As for the foundations, Mr Blinkhorn performed an analysis⁵⁵⁴ and concluded,
 - (i) that “[a]ll module foundations were cast and cured later than the original Delivery Date,”⁵⁵⁵ and
 - (ii) that the foundations for four modules of Train 2 were cured between 7 and 48 days after shipping of the respective module, “*and therefore installation / placing on foundations would have been impacted.*”⁵⁵⁶

⁵⁴⁹ Exhibit CER-1, ¶140.

⁵⁵⁰ SoCC, ¶122.

⁵⁵¹ ¶¶649-655.

⁵⁵² Exhibit RER-14, ¶4.4.23.

⁵⁵³ Tr. Day 8, 95:25-96:11.

⁵⁵⁴ Exhibit RER-14, Appendix D.

⁵⁵⁵ Exhibit RER-14, ¶4.4.36(i).

⁵⁵⁶ Exhibit RER-14, ¶4.4.36(iii).

650. Mr Lancaster disagrees with the first approach and explains that "*the comparison with the original delivery date with the actual foundation date is misleading because Respondents did not ship (and were not prepared to ship) on the original delivery date.*"⁵⁵⁷

651. With regard to the second approach, Mr Lancaster points out that the shipment date which Mr Blinkhorn uses is the date the modules were shipped from Turner's fabrication yard,⁵⁵⁸ which makes little sense since the relevant moment for comparison is the arrival of the respective module on site.

652. Mr Lancaster performs his own analysis allowing four weeks for the duration of shipping from Port of Houston to Port Harcourt and a further two weeks for customs clearance and transport to site.⁵⁵⁹ And he concludes that none of the four foundations identified as late by Mr Blinkhorn were in fact late.⁵⁶⁰ However, he also makes the comparison exercise for modules which Mr Blinkhorn had not analyzed and he concludes that other, different, four foundations of Train 2 were late by between 4 and 41 days.⁵⁶¹

653. In this regard Mr Lancaster reasons that these are minor delays "*which do not have any impact on the project as the late delivery of modules are still driving the critical path.*"⁵⁶²

654. At the Hearing, Mr Lancaster expanded on the impact of these four delays as follows:

*"I don't consider these to be critical. The reason for this is that when you receive shipments of modules and equipment, there is a sequence of erection that needs to be undertaken, and you would never expect to receive batches of modules and equipment and have everything on the foundation the same day. So I don't believe that it was an issue from that perspective. And also the fact that the modules that were being delivered were significantly incomplete, and, therefore, there was work being conducted on these modules for a number of years to come."*⁵⁶³

655. The Arbitral Tribunal finds Mr Lancaster's opinion convincing. It thus finds that the issue of the timing of completion of the foundations did not impact the critical path.

656. As regards the cannibalization, the Arbitral Tribunal finds that the issue does not have the weight GEOG attributes to it but it gives credence, in general terms, to IEC's explanations in the 9 April 2019 letter, even if the schedule attached to the letter might have been incomplete.⁵⁶⁴

⁵⁵⁷ Exhibit CER-7, ¶217.

⁵⁵⁸ Exhibit CER-7, ¶216.

⁵⁵⁹ Exhibit CER-7, ¶218.

⁵⁶⁰ See Exhibit CER-7, p. 48, Figure 3.10.

⁵⁶¹ Exhibit CER-7, ¶221.

⁵⁶² Exhibit CER-7, ¶501(d).

⁵⁶³ Tr. Day 8, 17:25-18:11.

⁵⁶⁴ See Tr. Day 8, 123:11-124:12.

Conversely, it finds Mr Blinkhorn's statement that "[t]his delay event would have prevented IEC from running the plant and has resulted in additional parts supply by GEOG and installation, testing and commissioning work which will take time to complete"⁵⁶⁵ to be speculative and unsubstantiated.

657. With respect to the bolt changes, both delay experts agree that the replacement of the bolts is likely to have impacted the pace of installation. Mr Lancaster explains in this regard:

[...] replacing a large number of bolts at site has to have a significant time impact on the construction of the plant.

*This issue will in all likelihood have contributed to the delays on the critical path and is interwoven into the issue of incomplete fabrication of the Modules. However from the records I have received to date and in the time available I cannot separate this issue from the extensive carry-over work ('COW') caused by the lack of completeness and delayed shipments of the modules and their component parts.*⁵⁶⁶

658. In turn, Mr Blinkhorn opines:

*"In my opinion, at a minimum this delay event will have caused disruption through the need for additional work in replacing the bolts."*⁵⁶⁷

659. However, neither expert submits a specific assessment of the impact this delay event may have had on the critical path.

660. Mr Lancaster explains:

*"Whilst this issue will have had an impact on the construction of the trains as I noted in my First Expert Report (section 2.5.5.4) it is not possible to separate this from on-going delivery issues. However, relative to the on-going issues with the MV Cabling, VFD and the stress analysis, I do not believe this issue has had significant impact on the critical path of the project."*⁵⁶⁸

661. Mr Blinkhorn states:

" 'Bolt Changes'

Start of Delay Event = N/A

End of Delay Event = N/A

⁵⁶⁵ Exhibit RER-14, ¶5.3.2.12.

⁵⁶⁶ Exhibit CER-1, ¶¶370-371.

⁵⁶⁷ Exhibit RER-14, ¶5.2.4.5.

⁵⁶⁸ Exhibit CER-7, ¶340.

Responsibility / liability for this delay event is disputed by the Parties.

In my opinion Dr Lancaster has not been able to demonstrate that this delay event caused critical delay to the Plant installation work.

*In my opinion, at a minimum this delay event will have caused disruption through the need for additional work in replacing the bolts.*⁵⁶⁹

662. The statement that “*Dr Lancaster has not been able to demonstrate that this delay event caused critical delay to the Plant installation work*” suggests that Mr Blinkhorn is not invoking the bolt replacement issue as a concurrent delay on IEC’s part but, on the contrary, that he denies that this event had any impact on the critical path. But this seems to be contradicted by Mr Blinkhorn next statement that “*at a minimum this delay event will have caused disruption through the need for additional work in replacing the bolts.*” In any event, since neither experts puts forward a specific impact of this delay event on the critical path, the Arbitral Tribunal is not in a position to make a finding that the issue caused any concurrent delay by IEC.
663. While not strictly necessary to make a technical assessment of the impacts of the various delay events on the critical path, the Arbitral Tribunal wishes to address GEOG’s suggestion that IEC deliberately dragged its feet because it had no real interest in starting up the entire Rumuji Plant.⁵⁷⁰ In particular, GEOG alleges that “*as of 2015, IEC no longer had any incentive to finalize, commission and start-up Trains 1 and 2. Without the Kaduna Power Plant as a customer, the Claimants simply did not have enough demand for LNG to operate even one train.*”⁵⁷¹
664. In this regard, the Arbitral Tribunal notes that three actions carried out by IEC/Greenville after 2015 strongly suggest that they were indeed interested in and expecting to start producing and selling LNG in the near term:
665. First, the fact that IEC purchased Train 3 in April 2016 and that in mid-2018 it began to prioritize the installation and start-up of Train 3⁵⁷² is a strong indicator that IEC/Greenville were willing to start producing LNG as soon as possible. Otherwise, the additional investment and efforts would not make sense. Moreover, the fact that they were able to start producing LNG with Train 3 in a relatively short timeframe (albeit at reduced capacity), indicates that the root causes of the delayed installation, commissioning and start-up of Trains 1 and 2 are more likely to be found in GEOG’s scope of supply than in IEC’s sphere.

⁵⁶⁹ Exhibit RER-14, ¶¶5.3.2.6-5.3.2.9.

⁵⁷⁰ Rs’ PHB1, ¶8.

⁵⁷¹ Rs’ PHB1, ¶15.

⁵⁷² SoCC, ¶7.

666. Second, in November 2016 IEC purchased 200 LNG trucks.⁵⁷³ This strongly suggests that at the time IEC/Greenville were willing and expecting to start producing LNG soon.

667. Third, the fact that in September 2017 Greenville entered into a take-or-pay gas supply agreement to receive gas starting in 2018⁵⁷⁴ strongly suggests that IEC/Greenville were willing and expecting to start producing LNG soon.

668. In conclusion, the Arbitral Tribunal finds,

- (i) that the delay in delivery of the modules and the subsequent protracted rectification of defects have slowed down IEC's installation, commissioning and start-up of the Trains and thus, it delayed the Trains' operation as long as the deliveries lasted, i.e. February 2019; and
- (ii) that GEOG has not met its burden of proof regarding any concurrent delays by IEC pertaining to installation, commissioning and start-up of the Trains.

(c) Issues with specific equipment affecting the operability of the Trains

i. VFD

669. As explained above,⁵⁷⁵ the soft starter was unsuited to start the MRC's supplied by GEOG and needed to be replaced by a VFD; GEOG is liable for this unsuitability.

670. IEC ordered the VFD on 18 June 2019,⁵⁷⁶ and installed it by early 2020.⁵⁷⁷

ii. Pipe supports and stress analysis

671. In its "Piping Stress Evaluation Summary" of 14 December 2018, GEOG acknowledged that "*modifications on the pipe supports have to be performed and implemented before the full operation of this plant*" and it announced that "*BHGE will procure the necessary material for train 1 and train 2 and will implement required modifications as per indicated in the redlined isometric drawings listed in this document.*"⁵⁷⁸

672. The Respondents' revisions to Claimants' draft minutes of the 12-13 February 2019 meeting in Rumuji reflect the following:⁵⁷⁹

⁵⁷³ See Exhibit C-1121.

⁵⁷⁴ Exhibit C-312; see Cs' PHB2, ¶8.

⁵⁷⁵ §X.B.2.d(3)(a).

⁵⁷⁶ Exhibit C-1042.

⁵⁷⁷ Claimants' Response to Procedural Order No. 10, of 30 July 2020, p. 2.

⁵⁷⁸ Exhibit C-242, p. 9.

⁵⁷⁹ Exhibit C-243, p. 8.

- (i) “GEOG confirms that differences were found, and problems came out that had to be mitigated. Findings have been shared with the IEC identifying lines, locations and supports to be modified.”
- (ii) “GEOG detected defects that must be modified.”
- (iii) “There are several around 37 lines in need of mitigation.”
- (iv) “After the GEOG identified modifications will be implemented, the defects will be eliminated. GEOG has already procured and shipped the material needed for the modifications, Make good activities ready to start, currently awaiting IEC approval to proceed.”

673. GEOG asserts that IEC “prevent[ed] GEOG from completing any make good activity needed to rectify warranty defects associated with the piping supports”⁵⁸⁰ and that it “den[y]ed] GEOG to perform a 3D laser scanning of the plant at GEOG costs without any meaningful reason.”⁵⁸¹

674. These complaints, based on Mr Pagliaro’s Testimony,⁵⁸² seem to refer to:

- (i) IEC’s delay in sharing the results of the Softec analysis with GEOG.⁵⁸³
- (ii) IEC’s denial to give permission to GEOG to take pictures or to perform a 3D laser scanning of the Trains.⁵⁸⁴
- (iii) GEOG having shipped, at the beginning of 2019, the materials needed to rectify the pipe supports,⁵⁸⁵ IEC’s denial of permission to complete these activities.⁵⁸⁶

675. However, the Arbitral Tribunal considers IEC’s explanations as to why it held back with authorizing GEOG to perform the remediation works to be reasonable. Specifically, Mr Pirijns has explained in this regard:

“It is true that I would not authorize GE/BHGE to perform the remediation described in their December 2018 report until our external consultants at Softec were able to review their work and confirm that it was right. GE/BHGE’s proposed structural modifications might have created knock-on effects elsewhere, or might have been wrong. I did not want GE/BHGE removing and replacing insulation, altering structural members and welding in a Train until I was confident that the actions proposed were final. I am glad

⁵⁸⁰ SoD, ¶220(iv).

⁵⁸¹ SoD, ¶220(vi).

⁵⁸² Exhibit RWS-7, ¶23, fourth bullet point.

⁵⁸³ Exhibit RWS-7, ¶¶77, 5, fifth bullet point.

⁵⁸⁴ Exhibit RWS-7, ¶¶80-81, 5, sixth bullet point, with reference to Exhibits R-153 and C-243, item no. 9.

⁵⁸⁵ Exhibit RWS-7, ¶74.

⁵⁸⁶ Exhibit RWS-7, ¶5, seventh bullet point, with reference to minutes of meeting of 9 January 2019, which reflect that GE was waiting for “*the greenlight from the customer to start the modification of process piping support according to stress analysis*,” (Exhibit R-240, p. 5) and to timesheets from the period January-March 2019, showing GE personnel “*On standby, Awaiting greenlight from Greenville to proceed activities*” (Exhibit R-241).

that I made that decision because during 2019, GE/BHGE substantially changed their stress findings.”⁵⁸⁷

676. In light of GEOG’s lack of transparency as regards the stress tests it had or had not been performing and of the fact that it was only thanks to IEC’s initiative to retain Softec to check the soundness of the piping supports that the piping deficiencies were unearthed, the Arbitral Tribunal finds Mr Pirijns’s desire for certainty about the finality of the solutions to be implemented to be legitimate and reasonable. Moreover, Mr Pirijns’s misgivings turned out to be justified in hindsight. Subsequent to the “Piping Stress Evaluation Summary” of 14 December 2018,⁵⁸⁸ GEOG prepared two further analyses, in March 2019⁵⁸⁹ and in August 2019,⁵⁹⁰ all three analyses being inconsistent with each other.⁵⁹¹

677. Also Mr Pirijns’s explanations on the 3D laser scanning are plausible, namely that (i) it would have required removal of all the insulation and substantial scaffolding,⁵⁹² (ii) if GEOG had identified the stress deficiencies and the adequate make good actions –as it claimed it did–, it is not clear what benefit another survey could pose.⁵⁹³

678. By early 2020, IEC had remediated the piping stress defects itself.⁵⁹⁴

iii. MRC motor cables

679. During the 12-13 February 2019 meeting in Rumuji, GEOG acknowledged that the “*GEOG selected and supplied cables are not suitable to feed the MR Compressor Motor*” and it was agreed that “*GEOG has to supply suitable cables*” and that “[c]able re-procurement shall be made at GEOG cost.”⁵⁹⁵ The Respondents’ revisions to Claimants’ draft minutes of meeting further reflect that “*GEOG has identified 300sqmm cable size for the application, which IEC agrees*” and that “*GEOG has started the procurement process of the cables and any parts additional to the original design needed for the installation.*”⁵⁹⁶

680. The foregoing was confirmed in IEC’s letter of 28 February 2019:

“Below are the issues discussed in the Plenary Session and relevant take-away:

[...]

⁵⁸⁷ Exhibit CWS-12, ¶4.77.

⁵⁸⁸ Exhibit C-242.

⁵⁸⁹ Exhibits C-950 and C-951.

⁵⁹⁰ Exhibit C-877.

⁵⁹¹ See in this regard Exhibit CER-8, ¶¶6.1.27-6.1.33; see also Exhibit CWS-1, ¶¶4.78-4.79.

⁵⁹² Exhibit CWS-12, ¶4.82.

⁵⁹³ Exhibit CWS-12, ¶4.81.

⁵⁹⁴ Claimants’ Response to Procedural Order No. 10, of 30 July 2020, p. 2.

⁵⁹⁵ Exhibit C-243, pp. 3-4.

⁵⁹⁶ Exhibit C-243, p. 4.

2) *MR Compressor Cable Sizing, Selection and Installation:*

- *As described in previous IEC/Greenville communications to GEOG, the existing cables configuration for several users in Trains 1 and 2 is wrong and inadequate, requesting the replacement of the cables that overheat and may become harmful*
- *For the MR Compressors motors GEOG has to supply suitable cables — GEOG has identified 300sqmm cable size for the application, which IEC agrees*
- *Changes shall be made at GEOG cost and IEC will provide support, if required*⁵⁹⁷

681. Later, after this arbitration had been commenced, GEOG conceded the amount of USD 250,000 for the cost of replacing the MRC Cables.⁵⁹⁸ While this does not entail an acknowledgement that the cables were in fact undersized,⁵⁹⁹ it is certainly not inconsistent with GEOG's earlier acknowledgement in February 2019.

682. Despite all of the foregoing, the Respondents' expert, Mr Middleton, concluded that "*if the cables had been installed in air on trays, as originally specified, separated by one cable diameter and had been protected from exposure to the sun and other heat sources, they were adequately sized to supply power to the MRC motors.*"⁶⁰⁰

683. The Arbitral Tribunal is not convinced that the MRC cables were adequately sized. On the contrary, it is persuaded by IEC's expert, Mr Wright, who explained that (i) the cables were installed underground under the supervision of GE Nigeria and that GEOG did not object to this deviation from the original specification,⁶⁰¹ (ii) the separation by one cable diameter proposed by Mr Middleton was not possible with the cable trays specified by GEOG,⁶⁰² and (iii) GEOG did not design or supply any protection from heat exposure.⁶⁰³ Thus, Mr Wright convincingly explained: "*If the cables had been installed in air with Respondent-provided cable trays as Mr. Middleton suggested with the specified ambient temperature, [...]the] rating is also below the required MRC motor full load current of 470.3 A.*"⁶⁰⁴ Consequently, "*[t]he decision to bury the cables as opposed to running them above ground had no consequence, as they were undersized for both locations.*"⁶⁰⁵

⁵⁹⁷ Exhibit C-186, p. 3.

⁵⁹⁸ See above, ¶¶587, 590.

⁵⁹⁹ In fact, GEOG refers to the cables which "*IEC claims were undersized*" (Exhibit R-314).

⁶⁰⁰ Exhibit RER-12, ¶4.2.1.1.

⁶⁰¹ Exhibit CER-8, ¶6.4.9; see Exhibit C-453.

⁶⁰² Exhibit CER-8, ¶6.4.12; Tr. Day 4, 103:19-104:14.

⁶⁰³ Exhibit CER-8, ¶6.4.14.

⁶⁰⁴ Exhibit CER-8, ¶6.4.15.

⁶⁰⁵ Exhibit CER-8, ¶6.4.16.

684. Despite GEOG's commitment at the 12-13 February 2019 meeting in Rumuji, GEOG did not deliver the replacement cables.

685. By early 2020, IEC had purchased and installed the replacement cables itself.⁶⁰⁶

iv. HHR

686. Mr Blinckhorn explains that Mechanical completion of the HHR was achieved on 20 November 2018 and that handover took place on 1 March 2019.⁶⁰⁷

687. Mr Lancaster considers that notwithstanding the dates mentioned by Mr Blinckhorn the "Ready-for-Start-Up" status was already achieved on 18 January 2019.⁶⁰⁸ He also indicates that, having reviewed the contemporaneous progress reports, he determined that the HHR for Train 1 was constructed by May 2018 followed by Train 2 in June 2018.⁶⁰⁹

688. As has been determined above,⁶¹⁰ IEC is responsible for the purchase and installation of the HHR.

v. Critical path impact

689. Concerning the VFD issue, it is undisputed that "[t]he MR Compressor motors are fundamental to the operation of the Trains and this issue therefore totally prevents the plant from being placed into operation."⁶¹¹

690. GEOG's complaint that IEC should have discovered the need for a VFD earlier⁶¹² goes astray. Not IEC but GEOG identified the soft-starter solution.⁶¹³ And by virtue of the soft-starter being added to GEOG's scope of delivery, it came to be covered by the Warranty under Clause 17 of the Equipment Contract. Moreover, after Change Order Request No. 27 had been agreed, when IEC voiced doubts about the aptness of the soft-starter, in March 2016, GEOG doubled down on its guarantee by stating "The soft starter WILL work. We are sure of the power requirements."⁶¹⁴

691. Neither does the Arbitral Tribunal see any merit in GEOG's criticism of a supposedly "late procurement and installation of the VFD"⁶¹⁵ by IEC. In late 2018 the soft starter solution was

⁶⁰⁶ Claimants' Response to Procedural Order No. 10, of 30 July 2020, p. 2.

⁶⁰⁷ Exhibit RER-14, ¶5.3.2.2.

⁶⁰⁸ Exhibit CER-7, ¶281.

⁶⁰⁹ Exhibit CER-7, ¶¶283, 267-268.

⁶¹⁰ §X.B.2.b(1)(c)iii.

⁶¹¹ Exhibit CER-1, ¶562; see also SoC, ¶210.

⁶¹² SoD, ¶68.

⁶¹³ SoD, ¶67.

⁶¹⁴ Exhibit C-248; see also Exhibit C-879: "Again, the soft starter equipment was sized correctly and the joint work with GE-Jenbacher (to size and select their equipment) was also performed correctly."

⁶¹⁵ Rs' PHB1, ¶120; see also ¶119.

found ineffective and it was determined that instead a VFD was required.⁶¹⁶ Not long thereafter, the issue was discussed in the 12-13 February 2019 meeting in Rumuji.⁶¹⁷ After that, IEC waited for GEOG to “*identify a viable long-term sustainable solution for this critical problem and inform IEC/Greenville as soon as possible.*”⁶¹⁸ Indeed, IEC points out: “*At the February 2019 Rumuji meeting, BHGE promised to deliver a workable starting system, cables, pipe supports and more. In response to Claimants’ repeated requests, BHGE dithered. Ultimately, in mid-2019, Claimants ordered these parts themselves and are now installing them.*”⁶¹⁹ Specifically, after GE Nigeria’s demobilization from site (15 May 2019)⁶²⁰ and once GEOG had informed IEC of its position that it was not responsible for supplying the VFD (21 May 2019),⁶²¹ IEC ordered the VFD itself on 18 June 2019.⁶²² The order was made within a month. The Arbitral Tribunal does not consider IEC’s timing to be deserving of reproach.

692. In addition, IEC observes that “*when BHGE says anything at all about delay, it contends Claimants are at fault for not seizing the reins from BHGE sooner*” and that “[i]n doing so, it wants you to forget BHGE’s threat to cancel the warranties if Claimants installed a single support for an overstressed pipe in 2016.”⁶²³ If IEC showed some reluctance to itself replace GEOG’s performance, in the Arbitral Tribunal’s view such reluctance would be comprehensible and legitimate in light of the risk of blurring responsibilities.
693. The Arbitral Tribunal finds that the pipe support defects are not minor items but they materially affected the operation and safety of the Trains.
694. Indeed, as explained by Mr Caligiuri, “[f]ailure to appropriately support heavy runs of piping that contain flanged connections will impose undue bending moments on the connections and produce nonuniform gasket loading, which can result in gasket failure and leakage of process fluids” which “could result in an explosion and/or fire with potentially catastrophic consequences to workers and equipment.”⁶²⁴ In the same vein, Mr Caligiuri’s assessment that “[t]hese nonconformities to ASME B31.3 represent potential life safety hazards,”⁶²⁵ is consistent with GEOG’s statements that the review of the “Piping Stress Evaluation Summary” of 14 December

⁶¹⁶ SoD, ¶68; see also GEOG’s letter of 21 May 2019: “*During the recent motor solo run test different constraints have surfaced making the soft starter solution not fitting for purpose anymore*” (Exhibit C-162, p. 2).

⁶¹⁷ Exhibit C-243, p. 8.

⁶¹⁸ Exhibit C-186, p. 4.

⁶¹⁹ Cs’ PHB1, ¶29, Footnote 41.

⁶²⁰ See SoD, ¶61(i).

⁶²¹ Exhibit R-162, p. 2.

⁶²² Exhibit C-1042.

⁶²³ Cs’ PHB2, ¶6.

⁶²⁴ Exhibit CER-2, p. 19.

⁶²⁵ Exhibit CER-8, ¶4.1.6.

2018 was “as per ASME B31.3” and that is was “intended to guarantee the safe operation of piping for the design life-span of 20 years.”⁶²⁶

695. Also GEOG’s expert, Mr Linwood, considers that “[w]hile the pipe support design changes were limited to 38 out of approximately 700 lines, the changes were identified by GEOG to be design critical, requiring construction modifications to be completed prior to placing Train 1 into operation.”⁶²⁷ In fact, Mr Linwood specifically acknowledges that Mechanical completion could not be reached in the presence the piping defects listed in the “Piping Stress Evaluation Summary” of 14 December 2018:

*“Had GEOG been aware of these pipe stress design issues at a time prior to the application for Mechanical Completion, I genuinely believe that GEOG’s professionalism and high standards of business ethics would have resulted in IEC being informed of these issues and corrective actions agreed with IEC prior to claiming Train 1 Mechanical Completion.”*⁶²⁸

696. Thus, it is clear to the Arbitral Tribunal that the Trains could not be operated before this issue was solved.

697. With regard to the MRC motor cables, GEOG put forward at the Hearing⁶²⁹ and in the Respondents’ First Post-Hearing Brief that “IEC could always have operated Trains 1 and 2 without any risk of overheating simply by operating at less than full capacity, as they are now doing with Train 3.”⁶³⁰ It might be true that, if the undersized cables had been the only issue affecting the operation of the Trains, IEC could have mitigated some of its alleged damages by operating the Trains at less than full capacity. However, given that the unworkable soft starter and the pipe support defects concurrently prevented any operation of the Trains, the Arbitral Tribunal does not need to further consider this question.

698. Similarly, it is unclear to the Arbitral Tribunal whether the Trains were capable of operating without the HHR (e.g. with a different feed gas or at a lower level of production).⁶³¹ However, this question may likewise remain unanswered given that, even assuming that the HHR was completed in March 2019,⁶³² at this time the VFD and the pipe support issues remained

⁶²⁶ Exhibit C-243, p. 8.

⁶²⁷ Exhibit RER-13, ¶4.4.3.4.

⁶²⁸ Exhibit RER-13, ¶4.4.3.1.

⁶²⁹ Tr. Day 4, 110:11-17.

⁶³⁰ Rs’ PHB1, ¶7.

⁶³¹ See the different positions in this regards in Exhibit CER-14, ¶5.2.2.8, and Exhibit CER-7, ¶65.

⁶³² Mr Lancaster indicates that “the HHR System Train 1 was effectively constructed by May 2018 followed by Train 2 in June 2018” (Exhibit CER-7, ¶64) whereas Mr Blinkhorn posits that the HHR was certified as mechanically complete on 20 November 2018 and that the “handover/transfer certificate of care, custody and control” for the HHR were dated 1 March 2019 (Exhibit RER-14, ¶¶4.4.15-4.4.16; 5.2.2.2-5.2.2.3).

unsolved. Thus, the Arbitral Tribunal agrees with Mr Lancaster that the HHR issue did not have a critical impact on the project.⁶³³

699. In conclusion, with the aforementioned caveat concerning the MRC motor cables, the Arbitral Tribunal mostly concurs with Mr Lancaster's following considerations:

"In addition to the general incomplete and poor quality delivery issues of the modules, three (3) significant and on-going issues are still causing delay to the project, these being the MV cable replacement, the VFD and the finalisation of the stress analysis and additional pipe support requirements.

*[...] do not find that it is possible to determine exactly when the critical path would have transferred from the general delays to the trains caused by late, incomplete and poor quality module supply, to the parallel ongoing issues of the MV Cable, VFD, and Pipe Stress analysis, but effectively these three (3) items are only the on-going components of this incomplete and late supply and have been separated only as they are yet to be resolved."*⁶³⁴

(d) Issues beyond the Trains themselves

700. GEOG alleges that "due to IEC's BOP scope of work still being open, which was in the critical path, the replacement activities [by GEOG] did not result in an actual delay"⁶³⁵ and it points out:

*"GEOG repeatedly communicated to IEC that the delays to the Rumuji Plant were attributable to IEC's own failures and that, in any event, IEC was severely delayed in completing its BOP scope of works, and notably that 'IEC appears to have under estimated its status to completion', while 'BHGE has taken many actions including ramping up of support personnel at site in furtherance of working to the commissioning schedule...it was BHGE's expectation that IEC would also take the same accelerated measures on the IEC scope (BOP)'. "*⁶³⁶

701. As evidence for a delayed completion of the balance of plant and its impact on the critical path towards operation of Trans 1 and 2 GEOG offers the expert report by Mr Blinkhorn whose instructions indeed include an assessment of "[t]he impact of IEC's delay in completing its Balance Of Plant ('BOP') on the performance of the GEOG and GEN scope of work."⁶³⁷

702. However, the only analysis to be found in the report in this regard is the following:

⁶³³ Exhibit CER-1, ¶297; Exhibit CER-7, ¶64.

⁶³⁴ Exhibit CER-7, ¶¶549-550.

⁶³⁵ SoCC, ¶122.

⁶³⁶ SoCC, ¶123; see also ¶132.

⁶³⁷ RER-14, ¶1.4.1(i).

"IEC was responsible for the scheduling and co-ordination of site activities after the delivery of the modules and equipment. I have not seen a 'Master Schedule' produced by IEC for the Plant.

*In my opinion this will have detracted from IEC's ability to properly plan and coordinate the installation work for both GEOG provided equipment and the Balance of Plant ('BOP') which was IEC's responsibility. This will, in my opinion, at a minimum have contributed to the delay in installation of both GEOG provided equipment and IEC's BOP."*⁶³⁸

703. Furthermore, Mr Blinkhorn states that "[t]he 'Balance of Plant' ('BOP') was not completed by IEC until 01st March 2019 following the handover of the HHR unit."⁶³⁹ This statement, though, is not accompanied by any details or evidence that could substantiate it.
704. The Arbitral Tribunal cannot make a finding of a concurrent delay based merely on Mr Blinkhorn's speculative opinion that the absence of a Master Schedule is likely to have contributed to delays in IEC's balance of plant.

(e) Conclusion on the delay analysis

705. The Arbitral Tribunal concludes that the driving events that caused a delay in the operation of Trains 1 and 2 were,
 - (i) first, the delayed delivery of the modules on 28 March 2016;
 - (ii) then, the protracted rectification of defects which slowed down IEC's installation, commissioning and start-up of the Trains and thus, delayed the Trains' operation as long as the deliveries lasted, i.e. until February 2019; and
 - (iii) then, the issues requiring replacement of the soft-starter with a VFD and remediation of the piping support issues, both of which prevented operation of Trains 1 and 2 until they were solved in early 2020.
706. All these delay events are GEOG's responsibility and the Arbitral Tribunal has not made any findings of concurrent delays on IEC's part.

⁶³⁸ Exhibit RER-14, ¶¶2.3.7-2.3.8; identical language can be found in ¶¶4.5.7-4.5.8; see also SoCC, ¶¶110-111.

⁶³⁹ RER-14, ¶4.4.40(ii).

b. Whether the procedure for claims under Clauses 6.6(i) and 17.4(i) of the Equipment Contract needed to be followed / was followed

(1) IEC's position

707. The Parties disagree about whether the procedure established in Clause 6.6(i) of the Equipment Contract was followed and whether it needed to be followed in order for IEC to claim for direct damages under Clause 6.6(ii).

708. At the Additional Hearing, IEC argued Clause 6.6 of the Equipment Contract stipulates four alternative remedies and that in order for IEC to exercise any of the remedies provided for in (ii), (iii) or (iv), there is no requirement that it first follow the procedure at (i); although IEC contends that it did in fact follow this procedure.⁶⁴⁰

709. In the Claimants' First Post-Hearing Brief, IEC expands on this argument as follows:

"BHGE has argued Claimants are not entitled to damages under Clause 6.6(ii) because they failed to give notice under Clause 6.6(i). But Clause 6.6 expresses Buyer's 'rights' as plural, separately, 'and/or' rights, making clear that 6.6(i) and 6.6(ii) are separate rights. And the phrase 'and, at its entire discretion' at the conclusion of Clause 6.6 would be meaningless if Claimants could not exercise their discretion to seek relief under subclauses (ii), (iii) and (iv) without also exercising clause (i)."⁶⁴¹

710. The Parties also disagree about whether the procedure established in Clause 17.4 of the Equipment Contract was followed, i.e. a thirty-day negotiation period following GEOG's failure to remedy a defect within a reasonable time. IEC's position on this question has been described above, in connection with the HHR.⁶⁴²

(2) GEOG's position

711. At the Additional Hearing, GEOG pointed out that the procedure of Clause 6.6(i) of the Equipment Contract was not followed.⁶⁴³

712. And in the Respondents' Second Post-Hearing Brief, it argues that pursuant to Clause 6.6(i) "*[i]t is only after that notice and in case 'Seller fails to agree...or to deliver within such agreed period', that the Buyer is 'free to exercise any of its rights', including the recovery of direct damages.*"⁶⁴⁴

⁶⁴⁰ Tr. Milan, 96:10-17.

⁶⁴¹ Cs' PHB1, ¶97, Footnote 141.

⁶⁴² §X.B.2.b(2)(a).

⁶⁴³ Tr. Milan, 142:22-143:4.

⁶⁴⁴ Rs' PHB2, ¶53.

713. GEOG's position on whether the procedure established in Clause 17.4 of the Equipment Contract was followed has been described above, in connection with the HHR.⁶⁴⁵

(3) The Arbitral Tribunal's analysis

(a) Clause 6.6(i) of the Equipment Contract

714. Clause 6.6 of the Equipment Contract provides as follows:

"If the Delay Limit Date has been reached on a Plant, then in addition to its right to receive Liquidated Damages, for the period of delay prior to that date, Buyer shall have the following rights:

- (i) by notice to Seller, to require Seller to agree, within five (5) Working Days of Buyer's demand, to deliver the Plant(s) within the period of time identified by Buyer at discretion. If Seller fails to agree within five (5) Working Days of Buyer's demand, or fails to deliver within such agreed period, Buyer shall be free to exercise any of its rights under (ii) and/or (iii) hereafter; and, at its entire discretion,*
- (ii) recover from Seller any direct damages Buyer suffers in accordance with the Agreement subsequent to the Delay Limit Date;*
- (iii) terminate the Agreement in accordance with Clause 28.2; and/or,*
- (iv) acquire those portions of the Plant that will have already been manufactured by then, subject to paying Seller for any such portions of the Plant that Buyer acquires at a reasonably commercial valuation per the Contract Value."*

715. The Arbitral Tribunal concurs with IEC. Clause 6.6 awards IEC four rights, the first of which is: *"by notice to Seller, to require Seller to agree, within five (5) Working Days of Buyer's demand, to deliver the Plant(s) within the period of time identified by Buyer at discretion."* IEC is only limited in its *"free[dom] to exercise any of its rights under (ii) and/or (iii)"* if it avails itself of the possibility of giving notice under Clause 6.6(i) requiring GEOG to agree to deliver the Trains within a certain period of time. Only in that case, IEC must wait for GEOG's answer to such requirement and, if GEOG agrees to deliver the Trains within that period of time, IEC must wait until such period of time elapses, in order to be able to exercise the rights to direct damages or to termination. Pursuant to Clause 6.6(i) IEC may grant an additional delivery term *"at discretion."* Such discretion logically includes not granting any additional delivery term at all.

⁶⁴⁵ §X.B.2.b(2)(b).

716. In conclusion, the Arbitral Tribunal finds that the Equipment Contract does not require IEC to give notice under Clause 6.6(i) before exercising its rights under Clause 6.6(ii).

(b) Clause 17.4(i) of the Equipment Contract

717. It has already been established above, that the procedure stipulated in Clause 17.4(i) was followed with regard to the VFD issue.⁶⁴⁶

718. The Arbitral Tribunal finds that the procedure was also followed with regard to the issue of incomplete and piecemeal delivery of the modules and with regard to the issue of the piping supports:

(i) It is clear that during the period between delivery of the modules (28 March 2016) and the end of the last shipment of minor items or replacement items (February 2019) GEOG was on notice with respect to the issues that necessitated remediation. IEC and GEOG coordinated the rectification works and shipments by communication on-site and/or by email.⁶⁴⁷ The Arbitral Tribunal also finds that by requiring almost three years to rectify this issue GEOG failed to remedy a Defect within a reasonable time.

GEOG has been on notice that IEC asserts claims for compensation for the damages resulting from the protracted remediation since Claimants filed their Notice of Demand and Commencement of Arbitration with the ICDR/AAA on 31 July 2018.

The 30-day negotiation term has elapsed without agreement.

(ii) It is also clear that GEOG was on notice of the piping support issues since 14 December 2018.⁶⁴⁸ The Arbitral Tribunal finds that GEOG failed or was unable to remedy the piping support issue within a reasonable time.

GEOG has been on notice that IEC asserts claims for compensation for the damages resulting in connection with the piping support issue since IEC's letter of 10 July 2019, wherein IEC stated:

[...] IEC/Greenville will thus remediate, complete, commission and start-up Trains 1 and 2, with all costs, expenses and losses being added to the claim already presented.

Critical items that remain uncompleted by BHGE/GEOG include:

[...]

⁶⁴⁶ §X.B.2.d(3)(b).

⁶⁴⁷ See e.g. Mr Lancaster's chronology of communications between IEC and GEOG in the period between March 215 and June 2017 (Exhibit CER-1, ¶¶388-410).

⁶⁴⁸ See Exhibit C-242.

(vi) *Stress calculations and make-good design to remediate the stress issues in the piping.*⁶⁴⁹

The 30-day negotiation term has elapsed without agreement.

c. Which kind of damages can be recovered as direct damages under the Equipment Contract

(1) IEC's position

719. In the Statement of Claim, IEC asserts that “(1) *direct (or general) damages* [are those], which ‘compensate for the value of the promised performance’ and (2) *consequential damages* [are those], which ‘are indirect and compensate for additional losses incurred as a result of the breach, such as lost profits....’”⁶⁵⁰

720. In the Claimant’s First Post-Hearing Brief, IEC offers a more expansive definition (and interpretation):

*“Under New York law, direct damages are the ‘natural and probable consequence of the breach.’ Or, put another way, the losses that ‘in the ordinary course of human experience’ can be expected to result from the breach.”*⁶⁵¹

721. And it further submits that this includes “1. *the rental value of the completed structure for the period of the delay; or 2. the reasonable return on the completed structure (treated as an investment) for the period of the delay.*”⁶⁵²

722. Moreover, IEC argues that “[u]nder New York law, various categories of damages (such as lost profits) can be either direct or indirect, depending on the circumstances and the breach.”⁶⁵³ On that basis, IEC submits that none of the damages claimed are excluded under the Equipment Contract (neither the damages items covered by Mr Helsen nor those calculated by Mr Lapuerta) because “*the ‘loss of profits’ and ‘loss of use’ in Clause 19.3 refers only to damages that are indirect; not direct damages that are lost profits or lost use.*”⁶⁵⁴

(2) GEOG's position

723. In the Respondents’ First Post-Hearing Brief, GEOG submits that under New York law “*direct damages are typically expectation damages, measured by what it would take to put the non-*

⁶⁴⁹ Exhibit R-156, pp. 1-2.

⁶⁵⁰ SoC, ¶1384, quoting from Exhibit CLA-34.

⁶⁵¹ Cs’ PHB1, ¶181, quoting from Exhibits CLA-42 and CLA-245.

⁶⁵² Cs’ PHB1, ¶182, quoting from CLA-202.

⁶⁵³ Cs’ PHB1, ¶177.

⁶⁵⁴ Cs’ PHB1, ¶179.

breaching party in the same position that it would be in had the breaching party performed as promised under the contract.”⁶⁵⁵ It also puts forward that “courts have held that such damages are measured by the ‘difference between the contract price and the market value of the goods at the time of the breach.’”⁶⁵⁶ And it adds that “[t]ypical examples of direct damages include unpaid contract amounts, cost to repair defective work, and reduced project value due to nonconforming work.”⁶⁵⁷

724. On the other hand, GEOG submits that consequential damages “seek to compensate a plaintiff for additional losses (other than the value of the promised performance) that are incurred as a result of the defendant’s breach.”⁶⁵⁸ It points out that “[t]he type of consequential damages most often sought is lost operating profits of a business”⁶⁵⁹ and that “[l]ost profits have been found to be consequential rather than direct damages ‘even if shown to be foreseeable and caused by defendant’s breach.’”⁶⁶⁰
725. In the Respondents’ Second Post-Hearing Brief, GEOG denies that the damages items described by Mr Helsen are direct damages.⁶⁶¹ And it argues that regardless of whether those damages items are direct damages, they are in any case excluded by virtue of Clause 19.3 of the Equipment Contract⁶⁶² which, pursuant to Clause 19.8, prevails over any other provision.⁶⁶³

(3) The Arbitral Tribunal’s analysis

726. The Arbitral Tribunal fully agrees with the definitions of direct and consequential damages offered by IEC in the Statement of Claim: “(2) direct (or general) damages [are those], which ‘compensate for the value of the promised performance’ and (2) consequential damages [are those], which ‘are indirect and compensate for additional losses incurred as a result of the breach, such as lost profits....’”⁶⁶⁴
727. This definition is in line with the that offered by GEOG according to which “[g]eneral damages measure the losses in the very thing to which the plaintiff is entitled . . . [while c]onsequential damages measure . . . the income it can produce or the losses it can avoid.” Nothing surprising.”⁶⁶⁵

⁶⁵⁵ Rs' PHB1, ¶145, quoting from Exhibit RLA-81.

⁶⁵⁶ Rs' PHB1, ¶145, quoting from Exhibit RLA-83.

⁶⁵⁷ Rs' PHB1, ¶145, with reference to Exhibit RLA-84.

⁶⁵⁸ Rs' PHB1, ¶146, quoting from Exhibit RLA-83.

⁶⁵⁹ Rs' PHB1, ¶146, quoting from Exhibit RLA-83.

⁶⁶⁰ Rs' PHB1, ¶146, quoting from Exhibit RLA-34.

⁶⁶¹ Rs' PHB2, ¶58.

⁶⁶² Rs' PHB2, ¶59.

⁶⁶³ Rs' PHB2, ¶¶60-61.

⁶⁶⁴ SoC, ¶384, quoting from Exhibit CLA-34.

⁶⁶⁵ Rs' PHB1, ¶147, quoting from Exhibit CLA-34.

728. In other words, direct damages refer to those which the party lost from the contract itself, i.e. the benefit of the bargain or the value of the other party's performance, whereas consequential damages refer to economic harm beyond the immediate scope of the contract.

729. The Arbitral Tribunal concurs with GEOG that “[t]ypical examples of direct damages include unpaid contract amounts, cost to repair defective work, and reduced project value due to nonconforming work,”⁶⁶⁶ i.e. the cost of obtaining the “*the very thing to which the plaintiff is entitled*.”

730. IEC invokes *Int'l Fid. Ins. Co. v. Cty. Of Rockland*⁶⁶⁷ in support of the notion that it is entitled to compensation for “*a delay in the cash flow that results from operating them*.”⁶⁶⁸

731. Specifically, it quotes the words: “*the owner's direct damages, attributable to the delay, can be measured in one of two ways: 1. the rental value of the completed structure for the period of the delay; or 2. the reasonable return on the completed structure (treated as an investment) for the period of the delay*”⁶⁶⁹ (which are in turn a quotation).

732. Indeed, the U.S. District Court for the Southern District of New York makes explicit that it is referring to “*the value of the 'loss of use' of the structure, or loss of revenue, that the owner or the owner's business suffers as a result of delay in the completion of the structure*.”⁶⁷⁰

733. The Arbitral Tribunal agrees that a party that is entitled to direct damages is not only entitled to receiving the purchased object but it is also entitled to receiving that object by the agreed delivery date. Hence, such injured party is not only entitled to compensation for the cost of remedying the object's defects, but it is also entitled to compensation for being deprived of the use of the object during the delay period. However, the Arbitral Tribunal is not convinced that under New York law direct damages for delay would include any loss of revenue.⁶⁷¹

734. The “*reasonable return*” would have to be limited to the market value of the use of the object, i.e., essentially, the rental value. However, IEC's claim for almost USD 700 million in damages resulting from a four-year delay in obtaining cash flows for two Trains (each with a useful life of twenty years) which it purchased for USD 95 million is something entirely different.

⁶⁶⁶ Rs' PHB1, ¶145.

⁶⁶⁷ Exhibit CLA-202.

⁶⁶⁸ Cs' PHB1, ¶182.

⁶⁶⁹ Cs' PHB1, ¶182, quoting from Exhibit CLA-202, *414-415.

⁶⁷⁰ Exhibit CLA-202, *414.

⁶⁷¹ Indeed, although IEC now maintains that there can be lost profits that are also direct damages (Cs' PHB1, ¶177), in the SoC it argued that lost profits are included within the category of consequential damages (SoC, ¶388).

735. In any event, the question of the extent to which, under New York law, direct damages include loss of profit and loss of revenues, does not need to be answered here, since liability for both concepts is excluded under Clause 19.3 of the Equipment Contract.

736. The Arbitral Tribunal does not agree with IEC that “*the ‘loss of profits’ and ‘loss of use’ in Clause 19.3 refers only to damages that are indirect; not direct damages that are lost profits or lost use.*”⁶⁷² The language of Clause 19.3 does not give reason to such interpretation. The Arbitral Tribunal does not share IEC’s view that excluding loss of profit and loss of revenues pursuant to Clause 19.3 “*even when [such damages] were direct, [...] would place Clause 19.3 in harsh conflict with Clause 6.6(ii)’s broad statement that Claimants may recover ‘any direct damages,’ rendering Clause 6.6(ii) effectively meaningless.*”⁶⁷³ But even if such conflict existed, Clause 19.8 unambiguously provides that such conflict is to be solved in favour of the provisions in Clause 19, which “*shall prevail over any conflicting or inconsistent provisions contained in any of the documents comprising this Agreement, except to the extent that such provisions further restrict Seller’s liability.*”

d. Whether the limitation of liability provision in Clause 19.3 of the Equipment Contract is applicable

(1) IEC’s position

737. In the Statement of Claim, IEC contends that under New York law, “*limitations or caps on damages are not enforceable when the alleged damages arise from the gross negligence or willful misconduct of the opposing party.*”⁶⁷⁴ And it adds that “*[A]ll that is required for ‘gross negligence’ under New York law’ is that the breaching party’s conduct ‘smack[] of intentional wrongdoing’ or show ‘a reckless indifference to the rights of others.*”⁶⁷⁵

738. IEC puts forward three circumstances which it claims justify a finding of willful misconduct or negligence that renders the limitation of liability provisions inapplicable:

(i) GEOG’s dishonesty regarding the delivery period:

“*[...] GE knowingly embarked on a course of conduct from September 2014 that made adequate performance of its obligations impossible. GE knew that it could not deliver two fully modularized skids-based LNG trains that would ‘meet the contractual*

⁶⁷² Cs’ PHB1, ¶179.

⁶⁷³ Cs’ PHB1, ¶177.

⁶⁷⁴ SoC, ¶385.

⁶⁷⁵ SoC, ¶386, quoting from Exhibit CLA-38.

*specifications' on the contractually specified timeframe of nine and twelve months, yet concealed that information from Claimants."*⁶⁷⁶

IEC submits that given the difficulties that GEOG was encountering with the Shell project GEOG must have known that it did not have sufficient resources to timely complete the manufacturing of IEC's Trains.⁶⁷⁷

And it further claims that in April 2018 Mr Cody Lindsey —then GEOG's senior on-site project manager— admitted that GEOG had known from the outset that it would not be able to meet the delivery dates committed in the Equipment Contract, because experienced employees within GEOG had told the GEOG sales team as much.⁶⁷⁸

(ii) Misrepresentations during project execution:

*"GE then exacerbated the consequences of its misconduct 'by indicating repeatedly that a contractually adequate product would soon be ready.' Thus, GE not only breached the agreements but also deceived Claimants into entering them. In addition, through its repeated misrepresentations, GE prevented Claimants from terminating the relationship and moving to a different provider."*⁶⁷⁹

(iii) The high number of defects and the falsification of pre-shipment testing and inspection certificates:

*"But GE's willful misconduct and gross [...] extends as well to the vast array of design and delivery defects that have marred its conduct. As detailed above, these defects reflect GE's indifference to the timing and quality of its attempts at performance and further require that the limitations of liability be disregarded."*⁶⁸⁰

*"The sheer magnitude of the incompleteness of the modules, combined with the falsified certifications of completion, establish that this contractual breach was knowing and willful, as well."*⁶⁸¹

739. In the Statement of Reply, IEC protests that GEOG failed to comply with the Arbitral Tribunal's order⁶⁸² to produce the entire Inquiry-to-Order ("ITO") file to IEC.⁶⁸³ And it requests that the Arbitral Tribunal make "an adverse inference that the file, if disclosed, would reveal that

⁶⁷⁶ SoC, ¶389; see also SoC, ¶¶56-68, 343-359.

⁶⁷⁷ SoC, ¶¶9, 113-114; see also SoR, ¶¶232-241, 245-250, 508-509.

⁶⁷⁸ SoC, ¶114; see also SoR, ¶¶230-231, 508(a).

⁶⁷⁹ SoC, ¶389; see also SoC, ¶¶138-139, 145, 226, 233, 319-323, 368, 374, 377-378; SoR, ¶¶519-522.

⁶⁸⁰ SoC, ¶390.

⁶⁸¹ SoC, ¶323; see also SoC, ¶¶329-335; SoR, ¶¶261-266; Cs' PHB1, ¶¶154-157, 161-164.

⁶⁸² Procedural Order No. 4, Annex I, No. 12.

⁶⁸³ SoR, ¶¶225-228.

GE/BHGE knew it was incapable of performing the Contracts, but knowingly executed them anyway, in violation of its own policies, in order to secure the substantial revenues without regard to the needs of its customer.”⁶⁸⁴

740. Moreover, it invokes three additional grounds for rendering inapplicable the limitation of liability provisions:

(i) Abandonment:

IEC submits that by mid-May 2019 GEOG had demobilized and abandoned the project.⁶⁸⁵ It posits that GEOG’s safety concerns were pretextual.⁶⁸⁶

And it argues:

“Abandonment is a separate and independent basis for overriding damages limitations. As noted above, extreme delay can itself constitute abandonment sufficient to void a liability limitation.

In addition, it is well-established that actual abandonment of a project can constitute gross negligence or willful misconduct sufficient to override a limitation on liability and damages. [...]”⁶⁸⁷

(ii) Uncontemplated delay:

IEC argues that “separately and independently, the liability limitations do not apply because GE’s four years of delay was not contemplated in the contracts and is so unreasonable as to constitute intentional abandonment.”⁶⁸⁸ In this regard, it explains:

[...] The delay here, followed by GE/BHGE’s actual abandonment of the Project, is so unreasonable as to vitiate the liability limitations.

The contractual delivery dates were far from arbitrary. They were based on Claimants’ need to get LNG to hundreds of customers in Nigeria. Indeed, Claimants invested more than US\$ 500 million to establish their business of liquefying Nigeria’s natural gas and then delivering it by cryogenic truck to customers in Nigeria and West Africa that are currently served by Nigeria’s unreliable electricity and pipeline grids, or by expensive diesel fuel. Moreover, the delivery dates were based on Claimants’ need to make good on negotiations with the Nigerian government — specifically, Greenville’s negotiations with the Federal Ministry of Power of Nigeria to supply LNG to a power plant that the

⁶⁸⁴ SoR, ¶228.

⁶⁸⁵ SoR, ¶286.

⁶⁸⁶ SoR, ¶¶287-293.

⁶⁸⁷ SoR, ¶¶434-435; see also Cs’ PHB1, ¶¶169-170, 86-89.

⁶⁸⁸ SoR, Heading before ¶425; see also Cs’ PHB1, ¶¶167-168.

*Ministry of Power was building in Kaduna State, a power plant that was scheduled for completion in 2015. Claimants could have never envisioned four years of delay, followed by outright abandonment.*⁶⁸⁹

(iii) Fundamental breach:

Finally, IEC submits that GEOG's "failure to deliver in 9 and 12 months, as well as its failure to do basic engineering — process (liquefaction), mechanical (stress, flare and PRVs) and electrical (starting system and cabling) — breached fundamental contractual obligations that have caused years of delays."⁶⁹⁰ And it argues that "[t]hese breaches are sufficient to overcome both the limitations on delay damages and the exclusion of consequential damages and lost profits."⁶⁹¹

741. In the Claimants' First Post-Hearing Brief, IEC adds "*Dishonesty Regarding BHGE's Process Engineering*" to the circumstances which it claims justify a finding of willful misconduct or negligence that renders the limitation of liability provision inapplicable. In this regard, it explains that GEOG "*deceived, concealed and misrepresented the facts regarding its process engineering before and after the Contract was signed.*"⁶⁹²
742. In the Claimants' Second Post-Hearing Brief, IEC replies to GEOG's objection to IEC invoking the foregoing three grounds at a late stage of the proceedings. It denies that these grounds are new claims and puts forward that they are mere "*counter-arguments*" which are not "*rooted in new facts*" but on facts that are "*the bedrock facts of this case.*"⁶⁹³ And it points out that "*[t]he notion that BHGE has been deprived of an opportunity to contest those facts or respond to legal authorities is absurd. As to abandonment, BHGE fully abandoned the project after the SoC had been filed.*"⁶⁹⁴
743. To GEOG's argument that under New York law these three principles are only applicable to clauses that exclude all damages for delay, IEC replies that "*New York imposes no such limitation, and it would make no sense.*"⁶⁹⁵

⁶⁸⁹ SoR, ¶¶428-429.

⁶⁹⁰ SoR, ¶430.

⁶⁹¹ SoR, ¶431; see in this regard, SoR, ¶¶431-433; see also Cs' PHB1, ¶¶171-172.

⁶⁹² Cs' PHB1, ¶158.

⁶⁹³ Cs' PHB2, ¶124.

⁶⁹⁴ Cs' PHB2, ¶124.

⁶⁹⁵ Cs' PHB2, ¶¶124-125.

(2) GEOG's position

744. In the Statement of Defense, GEOG submits that it is only in exceptional circumstances that courts applying New York law have declined to enforce exculpatory clauses on public policy grounds.⁶⁹⁶ And it explains:

*"In setting a high bar for this public policy exception, the Court of Appeals stated that 'an exculpatory clause is unenforceable when, in contravention of acceptable notions of morality, the misconduct for which it would grant immunity smacks of intentional wrongdoing'. Indeed, the Court of Appeals has held that willful acts 'subsume[s] conduct which is tortious in nature, i.e., wrongful conduct in which defendant willfully intends to inflict harm on plaintiff at least in part through the means of breaching the contract between the parties.'*⁶⁹⁷

745. It further argues that courts have found exculpatory clauses to be enforceable even in the face of intentional breaches provided the breaching party acted in pursuit of a "legitimate economic self-interest."⁶⁹⁸

746. As regards IEC' charge of dishonesty regarding the delivery period, GEOG alleges, among others, the following:

*[...] in focusing almost entirely on the statements made by GEOG's marketing team, IEC's characterization of the facts thoroughly distorts the arm's length relationship between the two sophisticated contracting parties. In fact, following initial discussions involving GEOG's marketing team, the parties engaged in lengthy negotiations that included extensive discussions during which IEC scrutinized the technical, commercial, and legal details of the project. Without citing to any specific statements or omissions that were made in the course of the negotiations, and focusing instead on vague and conclusory allegations regarding GEOG's apparent 'lack of expertise in and lack of success with building LNG plants', IEC claims that 'GE withheld material information concerning its present capabilities during contract negotiations.'*⁶⁹⁹

747. With respect to the alleged misrepresentations during project execution, GEOG objects that IEC does not "cite[e] a single specific, actionable misstatement."⁷⁰⁰

⁶⁹⁶ SoD, ¶174.

⁶⁹⁷ SoD, ¶174, quoting Exhibit RLA-33 and Exhibit RLA-34.

⁶⁹⁸ SoD, ¶175.

⁶⁹⁹ SoD, ¶186.

⁷⁰⁰ SoD, ¶171.

748. As for gross negligence, GEOG submits that it did not act with reckless indifference to IEC's interest:

*"Far from supporting a finding of reckless indifference, the record in fact reflects a sustained effort by the GEOG Entities to save a project that IEC severely mismanaged. The GEOG Entities provided a punch list of items in both their and IEC's scope, kept its technicians on the project site to assist with a variety of issues caused by IEC that were out of the GEOG Entities' scope, and mobilized additional personnel with continuous on-site presence to get the Rumuji Plant up and running. Indeed, the GEOG Entities provided all of this additional assistance without payment and 'without worrying whether it was [GE's] scope or IEC['s] scope', relying only on IEC's promise that the economic implications would be resolved later. On this evidence, IEC cannot prove that the GEOG Entities showed a reckless indifference to IEC's interest."*⁷⁰¹

749. In the Respondents' First Post-Hearing Brief, GEOG objects to IEC invoking the grounds of abandonment, unanticipated delay and fundamental breach at a late stage of the proceedings.⁷⁰²

750. Moreover, it argues that "*all the case law that the Claimants cite in support of these new, fact-based exceptions are inapposite*" as "*[t]hey involve 'no-damages-for-delay' clauses, which waive claims for any damages resulting from delays (direct, indirect and consequential damages),*"⁷⁰³ which is not the case with the Equipment Contract.⁷⁰⁴

751. In the Respondents' Second Post-Hearing Brief, GEOG submits that "*for a party to avoid a limitation of liability clause and to 'recover on the ground of abandonment, a contractor must establish that the contractee is responsible for delays which are so unreasonable that they connote a relinquishment of the contract by the contractee with the intention of never resuming it.'*"⁷⁰⁵ GEOG contends that it did not interrupt or refuse to carry out works but that the issue was merely of presence at site, to which GEOG had no contractual obligation.⁷⁰⁶

752. Further, GEOG objects to IEC's allegations on false certifications which it considers untimely.⁷⁰⁷

⁷⁰¹ SoD, ¶177.

⁷⁰² Rs' PHB1, ¶¶185-186.

⁷⁰³ Rs' PHB1, ¶187.

⁷⁰⁴ Rs' PHB1, ¶188; see also Rs' PHB2, ¶45.

⁷⁰⁵ Rs' PHB2, ¶46, quoting from Exhibit RLA-102.

⁷⁰⁶ Rs' PHB2, ¶¶46-49.

⁷⁰⁷ Rs' PHB2, ¶18.

(3) Arbitral Tribunal's analysis

(a) Willful misconduct and gross negligence

753. It is agreed among the Parties that willful misconduct and gross negligence render the contractual limitations of liability inapplicable under New York law.⁷⁰⁸

i. Dishonesty regarding the delivery period

754. The Arbitral Tribunal does not find that there is sufficient evidence for a finding that GEOG acted with willful misconduct when it represented that it was in a position to fulfill the Delivery Date agreed in the Equipment Contract.

755. Indeed, the only evidence of an actual positive knowledge by GEOG that it would not be able to fulfill the Delivery Dates are (i) minutes prepared by Ms Sahajwalla of a meeting on 13 April 2018 with Mr Lindsey, GE's Rumuji site manager at the time,⁷⁰⁹ and (ii) notes taken by Mr Van den Broeke of an August 2018 meeting with Mr Lindsey.⁷¹⁰

756. Both documents reflect their author's recollection of Mr Lindsey's stating, on both occasions, said that Mr Salof had disagreed with others at GEOG about the feasibility of the 9-month construction term and had considered 18 months to be necessary. Apparently, however, Mr Salof's opinion did not hold sway ("nobody listened to Mr. Salof").⁷¹¹

757. Neither Mr Lindsey's nor Mr Salof's witness testimony was offered to the Arbitral Tribunal, who is thus not in a position to critically assess the relevance of an utterance by Mr Salof the context of which remains unclear. In this regard, IEC faults GEOG for failing to present Mr Lindsey as a witness.⁷¹² However, IEC has itself not attempted to call Mr Lindsey.⁷¹³

758. In any event, these two documents are evidence that there were internal disagreements about the time GEOG would require to manufacture the Trains. One skeptical opinion within GEOG does not amount to GEOG having positive knowledge that it could not meet the Delivery Dates. It appears that others considered it feasible that construction could be completed within 9 months. And this latter opinion seems to have prevailed.

759. Perhaps this prevailing opinion was not the most prudent. And perhaps GEOG should have known that it might encounter difficulties to deliver the Trains on time (IEC highlights many circumstances pointing in that direction, such as GEOG's prior experience with the Shell project).

⁷⁰⁸ SoC, ¶¶385-392; SoD, ¶¶99, 174-181.

⁷⁰⁹ Exhibit C-13.

⁷¹⁰ Exhibit C-14.

⁷¹¹ Exhibit C-13.

⁷¹² See e.g., SoR, ¶411.

⁷¹³ IEC has not availed itself of the possibilities provided for at paragraph 70 of Procedural Order No. 1.

But a brash confidence in one's ability to perform does not equate to willful misconduct or gross negligence, the threshold of which is very high in both cases.

760. As regards IEC's request that the Arbitral Tribunal infer from GEOG's failure to disclose the ITO file "*that GE/BHGE knew it was incapable of performing the Contracts, but knowingly executed them anyway, in violation of its own policies, in order to secure the substantial revenues without regard to the needs of its customer*,"⁷¹⁴ the Arbitral Tribunal finds GEOG's explanation of why the production of the final checklists was compliant with the Arbitral Tribunal's production order to be plausible:

*"On average, in this kind of project, in the ITO phase there are further supporting documents, but since this was a fast track project and since many features of the Trains were the same as the CGC train, many steps were carried out during meetings, and only the final checklist was exchanged."*⁷¹⁵

761. Thus, the adverse inference requested by IEC is declined.

ii. Falsification of Documents

762. In the Arbitral Tribunal's view, the alleged recent falsifications (the letter giving notice of withdrawal from Rumuji, Mr Hillier's representation of independence, the allegedly falsified time sheets) cannot support a finding of wilful misconduct with respect to the much earlier breaches on which IEC's claims are based.

763. In addition, the Arbitral Tribunal fails to see any indication of falsification in the Notice of Mechanical Completion and in the letter giving notice of withdrawal from Rumuji. This is merely a matter of divergent views about the correctness of statements made in those documents.

764. The issue with Mr Hillier's independence can, as the case may be, impact the weight attributed to his testimony, but it does not amount to falsification, in the Arbitral Tribunal's opinion.

765. As for the timesheets, Mr Kassem disclosed from the outset that they had "**subsequently reviewed these timesheets to allocate which hours were part of the Services Contract and which were outside of GEOG's scope and additional works provided.**"⁷¹⁶

766. The only alleged falsification that might be of any relevance are the false entries in the various inspection and test reports. However, in the Arbitral Tribunal's view, the issues about which the Claimants complain might indicate a deficient manufacturing and quality assurance / quality control by Turner and/or GEOG, but they do not reach the threshold of falsification of documents.

⁷¹⁴ SoR, ¶228.

⁷¹⁵ Rs' PHB2, p. 38, No. 7.

⁷¹⁶ Exhibit RWS-5, ¶21, emphasis added.

iii. Dishonesty regarding the process engineering

767. The Arbitral Tribunal has analyzed the issue of the process engineering in some detail⁷¹⁷ and does not find sufficient evidence for willful misconduct or gross negligence.

768. In any event, this issue is unrelated to the delay events identified to have driven the delayed operation of the Trains.

iv. Gross negligence evidenced by deficient performance

769. Both IEC and GEOG rely on *Kalisch-Jarcho, Inc. v. City of New York* for the concept of gross negligence,⁷¹⁸ and they concur that it is required that the breaching party's misconduct "smacks of intentional wrongdoing."⁷¹⁹

770. In that case the Court of Appeals of New York explained:

*[...] an exculpatory clause is unenforceable when, in contravention of acceptable notions of morality, the misconduct for which it would grant immunity smacks of intentional wrongdoing. This can be explicit, as when it is fraudulent, malicious or prompted by the sinister intention of one acting in bad faith. Or, when, as in gross negligence, it betokens a reckless indifference to the rights of others, it may be implicit.*⁷²⁰

771. The Arbitral Tribunal is not convinced that the "sheer magnitude"⁷²¹ of issues with GEOG's performance provides sufficient basis to establish that GEOG acted with reckless indifference to IEC's rights.

772. The engineering and manufacturing of an industrial plant, such as the Trains, is a complex project. During the execution of such projects issues invariably occur that require addressing. The number of issues in the present case might be high but the Arbitral Tribunal is not persuaded that this conclusively establishes gross negligence, the threshold of which is very high.

773. Likewise, the fact that, as IEC claims, many of the defects the Trains are riddled with "are life-threatening and potentially plant destroying"⁷²² is not sufficient for a finding of gross negligence. In the Arbitral Tribunal's view, the extent of the harm caused is not relevant to assess whether negligence was simple or gross. A merely negligent behaviour can have devastating

⁷¹⁷ See above, §§X.B.2.b(1)(c)i-X.B.2.b(1)(c)ii.

⁷¹⁸ SoC, ¶1386, Footnote 454; Exhibit CLA-7; SoD, ¶174, Footnote 168; Exhibit RLA-33.

⁷¹⁹ SoC, ¶1386; SoD, ¶174.

⁷²⁰ Exhibit CLA-7, **416-417.

⁷²¹ SoC, ¶¶319-323.

⁷²² SoC, ¶329.

consequences; conversely, a grossly negligent one can have minor consequences or no consequences at all.

774. For a finding of gross negligence, the Arbitral Tribunal would need to be pointed at specific instances in which GEOG acted with reckless disregard of, or with a lack of substantial concern for, the rights of Claimants.
775. As explained by the United States Court of Appeals, Second Circuit, in *Bayerische Landesbank v. Aladdin Cap. Mgmt.*, “[r]ecklessness in the context of a gross negligence claim means ‘an extreme departure from the standards of ordinary care,’ such that ‘the danger was either known to the defendant or so obvious that the defendant must have been aware of it.’”⁷²³
776. IEC has failed to prove such extreme departure from the standards of ordinary care.

(b) Adverse inferences

777. As regards IEC’s request for adverse inferences from GEOG’s failure to produce “*the internal GE schedules or communications that justified GE’s promises to Claimants in November 2016 [...] and January 2017 [...]*,”⁷²⁴ GEOG explained:

*“The original files are no longer available because they were originated from a version of the software ‘Primavera’ which is no longer available to the Respondents since it was used in GEOG’s Schertz factory that has been shut down.”*⁷²⁵
778. The Arbitral Tribunal does not consider that there are grounds to conclude with sufficient confidence that GEOG’s explanation is dishonest.
779. Likewise, as regards the communications between Chart and GEOG between 3 September 2014 and 15 September 2014, Mr Zhao’s work papers during that same period, the stress calculation files for the stress analyses of late 2018 and 2019, GEOG’s audited and unaudited financials, the ITO file and the Turner contract,⁷²⁶ the Arbitral Tribunal does not consider that there are grounds to conclude with sufficient confidence that GEOG’s explanations on the extent of its document production are dishonest.⁷²⁷

⁷²³ Exhibit CLA-5, *61.

⁷²⁴ Cs’ PHB1, ¶153 (p. 47); see also SoR, ¶411.

⁷²⁵ Respondents’ letter of 24 September 2019, p. 3.

⁷²⁶ Cs’ PHB1, ¶¶165-166; see also SoR, ¶411.

⁷²⁷ As regards the ITO file, see above, ¶760.

(c) Whether the new arguments for inapplicability of the limitations of liability, as relied on in the Statement of Reply, are admissible

780. As regards GEOG's objection to the admissibility of the "*three additional grounds – 'uncontemplated delay,' 'fundamental breach,' and 'abandonment,'*"⁷²⁸ put forward by IEC in the Statement of Reply, the Arbitral Tribunal does not concur with GEOG's characterization of these additional grounds as "*new fact-based claims.*"⁷²⁹

781. Except for the fact of GEOG's demobilization from site in May 2019, which IEC introduced to the arbitration as early as 5 July 2019,⁷³⁰ the new legal arguments of uncontemplated delay, fundamental breach and abandonment do not rely on any new facts that had not already been alleged by IEC.

782. GEOG had ample opportunity to address these arguments at the Hearing, the Additional Hearing, and in its two post-hearing briefs.

783. The Arbitral Tribunal sees no prejudice to GEOG or due process obstacle under New York law for the Tribunal to address these arguments.

(d) Uncontemplated delay

784. The case law relied on by IEC holds that uncontemplated delays may pose an exception to the enforceability of "*clauses in construction contracts exculpating parties from damages for delay in performance.*"⁷³¹ Indeed, the case law invoked by IEC refers in all cases to broad no-damage-for-delay clauses:

(i) "*no-damage-for-delay clauses*"; "*clauses in construction contracts exculpating parties from damages for delay in performance*";⁷³²

(ii) "*a broad exculpatory clause which relieves it from any claim arising from delay*"; "*a clause generally exculpating the contractee from delay liability*";⁷³³

(iii) "*clauses in construction contracts which exculpate parties from damages resulting from delays in performance*"; "*exculpatory contract provision*";⁷³⁴

⁷²⁸ Rs' PHB1, ¶185.

⁷²⁹ Rs' PHB1, ¶186.

⁷³⁰ Claimants' email of 5 July 2019.

⁷³¹ SoR, ¶425, quoting from CL-125, in turn citing *Corinno Civetta Const. Corp. v. City of New York*, 493 N.E.2d 905, 910 (N.Y. 1986).

⁷³² Exhibit CLA-125, *228-*229.

⁷³³ Exhibit CLA-126, *264.

⁷³⁴ Exhibit CLA-127, *373.

- (iv) “ ‘no damage for delay’ clause,”⁷³⁵
- (v) “no-damages-for-delay clause”; “a contract clause barring damages for delay in the performance of the contract.”⁷³⁶

785. However, IEC seeks to expand the scope of application of the unanticipated-delay exception from no-damage-for-delay clauses to, more generally, “liability limitations.”⁷³⁷

786. As explained above, the damages as calculated by Mr Lapuerta as well as some of the damages items submitted by Mr Helsen are indirect damages and/or they are otherwise excluded under the general provision contained in Clause 19.3, which limits both parties’ liability to damages different from loss of profit or revenues, loss of use of the plant, parts or any associated equipment, downtime costs, claims of a party’s customers for such damages, or any special, consequential, incidental, indirect or exemplary damages.

787. This provision merely provides for a limitation of liability. It is not a full exculpatory clause. Moreover, it is not specifically referred to delay but is meant to be applicable to any liability, for whatever reason. Hence it does not qualify as a no-damage-for-delay clause and, thus, its application is not barred by the unanticipated-delay exception.

788. In addition to Clause 19.3, the Equipment Contract contains further provisions which also result in the exclusion of the damages as calculated by Mr Lapuerta as well as of some of the damages items submitted by Mr Helsen, namely:

- (i) For delay in delivery up until the Delay Limit Date, Clause 6.5 provides for liquidated damages and it excludes any other remedies:⁷³⁸

“The payment of Liquidated Damages shall be Buyer’s sole and exclusive remedy and Seller’s exclusive liability for any failure to achieve or deliver a Plant (or any portion thereof) by the Delay Limit Date or any agreed extension thereof. Should Seller’s failure to deliver a Plant (or any portion thereof) continue beyond the Delay Limit Date, then Buyer shall have the right to pursue and exercise the rights and remedies in Clause 6.6.”

⁷³⁵ Exhibit CLA-128, *415.

⁷³⁶ Exhibit CLA-129, *406.

⁷³⁷ SoR, ¶¶425, 427.

⁷³⁸ For delays extending beyond the Delay Limit Date Clause, 6.6 provides that direct damages shall be due, and it also stipulates further remedies, namely IEC’s right to terminate the Equipment Contract and to acquire portions of the Trains that are already manufactured. This provision entails no exclusion or limitation of liability. Here, the limitation of GEOG’s liability to direct damages does not follow from Clause 6.6 but from the general limitation of liability in Clause 19.3.

Again, this exclusion of remedies other than liquidated damages is not a full exculpatory clause. Hence it does not qualify as a no-damage-for-delay clause and, thus, its application is not barred by the unanticipated-delay exception.

And, in any event, a delay up until the Delay Limit Date is evidently within the parties' contemplation.

- (ii) For delays by GEOG in remedying a Defect, Clause 17.4 provides that direct damages shall be due if GEOG fails or is unable to remedy a Defect within a reasonable time. It further provides that in the event that due to GEOG's failure or inability to remedy the Defect IEC is deprived of a substantial part of the benefit of the Trains, IEC may terminate the Equipment Contract in accordance with Clause 28.2. And Clause 17.6 provides that the remedies provided for in Clause 17 are the exclusive remedies for all claims based on failure of or defect in the Trains or parts provided under the Equipment Contract. Again, this limitation of remedies is not a full exculpatory clause. Hence it does not qualify as no-damage-for-delay clause and, thus, its application is not barred by the unanticipated-delay exception.

Moreover, in Clause 17.4 the parties have specifically contemplated the situation that "*Seller fails or is unable to remedy a Defect within a reasonable time.*" These are precisely the facts alleged by the Claimants, namely, not just that GEOG took a long time to remedy defects but that it did not remedy them at all, within a reasonable time. For this specific situation, within the parties' contemplation, the parties have stipulated the specific remedies mentioned above.

(e) Fundamental breach

789. In the Arbitral Tribunal's view, the Equipment Contract does not reflect IEC's allegations on the fundamental nature of the committed Delivery Dates. On the contrary, delays exceeding the Delay Limit Date and the remedies in that situation were specifically contemplated in Clause 6.6 of the Equipment Contract.⁷³⁹ If timely delivery had been that fundamental, the Equipment Contract should have been drafted accordingly.

(f) Abandonment

790. Abandonment or repudiation of the agreement are specifically contemplated in the Equipment Contract. For these cases, Clause 28.2.1(iii) stipulates a specific remedy, namely the right to

⁷³⁹ See above, ¶592(ii).

termination. Pursuant to Clause 28.2.2(iii), upon such termination, IEC may recover its direct damages subject to the limitation of liability under Clause 19.2.

(g) Conclusion

791. The Arbitral Tribunal thus concludes that the limitation of liability provision in Clause 19.3 of the Equipment Contract remains applicable.

e. Damages items

(1) Loss of auxiliary products and containers for the drying process

(a) IEC's position

792. In the Statement of Claim, IEC claims compensation for USD 859,809.13 spent by Greenville on nitrogen and chemical storage products which were wasted as a consequence of either (i) the drying process having taken longer than would normally be required, which in turn was a consequence of the protracted installation and commissioning of the Trains due to the delivered modules being defective and incomplete, and/or (ii) the drying process needing to be repeated when the VFDs arrive.⁷⁴⁰

“Loss of Auxiliary Products and Containers in the Drying Process. Claimants have wasted US\$ 859,809.13 on nitrogen and chemical storage products because of (i) GE’s improperly long-last drying process, and (ii) the fact Trains 1 and 2 have now been dried but will have to be dried again when the VFDs arrive. This expense is a direct result of GE’s misconduct.”

793. In this regard, Mr Helsen explains in his first witness statement:

“We also have wasted capital expenses on the drying process. Before starting commissioning, the liquefaction plants need to go through a drying process requiring injection of nitrogen. For Trains 1 and 2, we have been forced to provide nitrogen for more than 6 months, 4x as long as the normal process. As a result, we have incurred excessive costs for nitrogen. Moreover, the drying process we have gone through for Trains 1 and 2 may now be wasted if the trains must sit idle for an extended period while GE’s start up issues are resolved.

The total cost of nitrogen is US\$ 398,248.69, and of that amount 80% — US\$ 318,627.75 — was unnecessary. A list of nitrogen charges and sample invoices for nitrogen are attached as Exhibit C-355. In addition, the refrigeration process requires

⁷⁴⁰ SoC, ¶401.

*different gases to be available (ethylene and LNG), and those gases evaporate over time. Based on GE's representations, we have rented containers for these refrigerants for almost 18 months, from November 2017 through the beginning of March 2019. The excessive cost of the container rental and products evaporated is US\$ 541,181.38. A list of charges for container rental and the evaporated gases payable to Messer is attached as Exhibit C-356.*⁷⁴¹

794. In the Statement of Reply, IEC updated these figure to USD 1,084,953.74.⁷⁴² As explained by Mr Helsen in his second witness statement, the cost of container rentals and LNG and ethylene is increased to USD 766,325.99 as of 1 August 2019, while the cost of nitrogen remains unchanged at USD 318,627.75.⁷⁴³

(b) GEOG's position

795. In the Respondents' Post-Hearing Brief, GEOG objects that this claim "is based on an estimated amount of nitrogen" but that "Mr. Helsen provides no details on the grounds of the estimate, the use of the nitrogen (what about Train 3 and the BOP?)."⁷⁴⁴

796. GEOG also points out that this is a cost sustained by Greenville, not by IEC.⁷⁴⁵

(c) Arbitral Tribunal's analysis

i. Whether this item constitutes direct damages

797. The Arbitral Tribunal finds that the incremental costs associated to the installation, commissioning and start-up, that are the consequence of GEOG's delays in, first, delivering the Trains, and then, remediating the Trains' defects, are costs of IEC getting what GEOG was supposed to give under the Equipment Contract. As such they are direct damages.

798. GEOG has not disputed that the auxiliary products and containers for the drying process which IEC is claiming for are required for the installation and commissioning of the Trains.

799. Thus, to the extent IEC –or, in this case, Greenville– spent more on auxiliary products and containers for the drying process than it would have but for GEOG's delays, it may recover such incremental costs.

⁷⁴¹ Exhibit CWS-5, ¶57-58.

⁷⁴² SoR, ¶¶549, 551; Exhibit CWS-10, ¶¶45-51; see also Cs' PHB1, ¶120.

⁷⁴³ Exhibit CWS-10, ¶¶45-51.

⁷⁴⁴ Rs' PHB1, ¶154.

⁷⁴⁵ Rs' PHB1, ¶154.

ii. Whether the quantum is sufficiently substantiated

800. Mr Helsen asserts that these damages amount to USD 1,084,953.74,⁷⁴⁶ and he explains that this amount is the sum of the following two items:

- (i) Nitrogen: USD 318,627.75, which is 80% of the total cost of nitrogen (of USD 398,248.69),⁷⁴⁷ those 80% being the portion that was as a consequence of GEOG's delays and thus excessive.⁷⁴⁸ The explanation provided is that nitrogen had to be provided for 6 months,⁷⁴⁹ which is about five times as long as normal. Therefore, Mr Helsen considers that 80% of the costs were excessive.
- (ii) Rental of containers for refrigerant (ethylene and LNG) and evaporation of refrigerant: The amount asserted in Mr Helsen's first witness statement for the excessive costs of rental and evaporation was USD 541,181.38, as of March 2019.⁷⁵⁰ The explanation provided was that "[b]ased on GE's representations, we have rented containers for these refrigerants for almost 18 months, from November 2017 through the beginning of March 2019."⁷⁵¹ In Mr Helsen's second witness statement,⁷⁵² the amount was updated to USD 766,325.99, as of 31 August 2019, which was broken down as:⁷⁵³
 - (a) USD 519,892.38 (rent)
 - (b) USD 198,565.92 (ethylene)
 - (c) USD 47,867.69 (LNG)

801. The Arbitral Tribunal considers that the quantum of this damages item is sufficiently substantiated.

iii. Whether IEC can claim for damages incurred by Greenville

802. In contrast to the alleged damages related to the remediation of defects by IEC in lieu of GEOG, which were all incurred directly by IEC, many of the damages associated with the delayed operation of the Trains, including the loss of auxiliary products and containers for drying process, were incurred by Greenville.

⁷⁴⁶ Exhibit CWS-10, ¶51.

⁷⁴⁷ The total cost is supported by Exhibit C-355 and Appendices U, V and W to Exhibit CWS-10.

⁷⁴⁸ Exhibit CWS-5, ¶¶57-58; Exhibit CWS-10, ¶¶45-47.

⁷⁴⁹ As of the date of Mr Helsen's first witness statement, Exhibit CWS-5, i.e. March 2019. The amount was not updated in Mr Helsen's second witness statement, Exhibit CWS-10.

⁷⁵⁰ Exhibit CWS-5. This amount was supported by Exhibit C-356.

⁷⁵¹ Exhibit CWS-5, ¶58.

⁷⁵² Exhibit CWS-10.

⁷⁵³ These amounts are supported by Appendices X and Y to Exhibit CWS-10.

803. In this regard, Mr Lapuerta asserts that “*if the delay in the project causes Greenville to lose \$1, then its 100% shareholder IEC will lose \$1.*”⁷⁵⁴

804. GEOG challenges this assertion by stating that “[t]he whole discussion in the expert report and at the Hearing that ‘one dollar of loss to Greenville is equal to one dollar of loss to IEC’ is legally meaningless – and difficult to follow from an accounting and factual standpoint”⁷⁵⁵ and, similarly, that “[t]his is simply wrong, factually and as a legal matter” and that “[i]t also ignores the contracts between IEC and Greenville and the ownership structure described by Mr. Helsen.”⁷⁵⁶

805. As stated by the U.S. District Court for the Northern District of New York, a parent company may recover losses incurred by its subsidiary if such losses flow inexorably to the parent.⁷⁵⁷

806. This is the case with IEC and Greenville. In this regard, the Arbitral Tribunal agrees, broadly, with the notion expressed by Mr Lapuerta that “*if the delay in the project causes Greenville to lose \$1, then its 100% shareholder IEC will lose \$1.*”⁷⁵⁸ IEC is the sole owner of Greenville (indirectly, through the intermediate Belgian entity, West Africa Electric NV).⁷⁵⁹ Consequently, any financial loss incurred by Greenville diminishes the value of IEC’s equity in Greenville, which is a financial loss to IEC.

807. In this regard, Mr Lapuerta also explained:

“IEC might only suffer a portion of the loss in three scenarios: if Greenville had borrowed funds from a bank, or if Greenville could not repatriate profits to IEC, or if IEC had to pay a second layer of taxes that did not apply to Greenville. The first two scenarios do not apply to this case. The third scenario may eventually apply, after the expiration of a five-year tax exemption period, and after Greenville pays back its loans to IEC, shifting to the payment of dividends. At that point, IEC may face a cost associated with a relatively small tax on dividends, if it cannot credit a dividend tax payment against other income. The effect is relatively distant and minor, [...].”⁷⁶⁰

808. Indeed, IEC is the sole lender/funder of Greenville.⁷⁶¹ Consequently, Greenville’s entire profit/EBITDA margin goes to IEC to repay loans, pay dividends or enhance the value of IEC’s equity in Greenville. And absent a specific allegation regarding the effect which taxes payable

⁷⁵⁴ Exhibit CER-10, ¶15.

⁷⁵⁵ Rs’ PHB1 ¶67.

⁷⁵⁶ Rs’ PHB2, ¶8.

⁷⁵⁷ Exhibit CLA-164, *25; see also Exhibits CLA-165, *19, and CLA-166, *575.

⁷⁵⁸ Exhibit CER-10, ¶15; see in this regard: SoR, ¶¶15, first bullet point, 525-532, 544-545; Cs’ PHB2, ¶¶131-133.

⁷⁵⁹ SoR, ¶438(d).

⁷⁶⁰ Exhibit CER-10, ¶15.

⁷⁶¹ See Exhibit CER-10, ¶102.

by IEC on dividends may have on the quantum of the damages items described by Mr Helsen the Arbitral Tribunal shall assume that there is no such effect.

809. Thus, the Arbitral Tribunal finds that, under Clauses 6.6(ii) and 17.4(i) of the Equipment Contract, IEC may recover direct damages incurred by Greenville as a result of the delayed entry into operation, such as the loss of auxiliary products and containers for drying process.

810. In conclusion, IEC's claim for damages in an amount of USD 1,084,953.74 for the loss of auxiliary products and containers for the drying process is to be awarded in full.

(2) Loss of useful life of Trains and balance of plant and of logistical and customer equipment

(a) IEC's position

811. In the Statement of Claim, IEC claims USD 53,689,812.14 for loss of useful life of the Trains delivered by GEOG and USD 12,412,682.46 for the loss of useful life of logistical and customer equipment, resulting from the equipment sitting idle during the delay in reaching operation.⁷⁶²

812. In the Statement of Reply, IEC updated these figures⁷⁶³ to USD 68,729,792.78 and USD 19,074,435.52, respectively, “*to account for the passage of time and events that have occurred since [Mr Helsen's] first witness statement.*”⁷⁶⁴

(b) GEOG's position

813. In the Respondents' First Post-Hearing Brief GEOG points out that these items “*are not direct damages, whatever definition of direct damages is applied*” and that “*these claims are based on the wrong factual assumption that the Trains have a useful life of 20 years from delivery, instead of 20 years from start-up.*”⁷⁶⁵

(c) Arbitral Tribunal's analysis

814. IEC and Mr Helsen distinguish between the loss of useful life of,

- (i) Trains and balance of plant, on the one hand, and
- (ii) logistical and customer equipment, on the other.

815. However, the former needs to be further distinguished:

⁷⁶² SoC, ¶402.

⁷⁶³ SoR, ¶¶549, 551; Exhibit CWS-10, ¶¶59, 66; see also Cs' PHB1, ¶119.

⁷⁶⁴ Exhibit CWS-10, ¶55.

⁷⁶⁵ Rs' PHB1, ¶155; see also Rs' PHB2, ¶¶74, 77(i).

- (i) The loss of useful life of the Trains delivered by GEOG can be considered to be direct damages as they are lost from the contract itself, i.e. the benefit of the bargain or the value of GEOG's performance.⁷⁶⁶ Indeed, GEOG itself mentioned "*reduced project value due to nonconforming work*" as a typical example of direct damages.⁷⁶⁷ And the U.S. District Court for the Southern District of New York has found that direct damages for delay include the loss of use during the delay period.⁷⁶⁸

However, Clause 19.3 of the Equipment Contract excludes liability for loss of use of the Plant, i.e. of the two Trains.⁷⁶⁹

- (ii) In contrast, the loss of useful life of the balance of plant (including Train 3, which Mr Helsen includes in his calculation) are indirect damages.

816. Likewise, the loss of useful life of logistical and customer equipment are indirect damages.

817. Thus, the Equipment Contract excludes all claims asserted by IEC for loss of useful life.

818. The Arbitral Tribunal notes that, even if one were to consider that these claims, or some of these claims, are not excluded, IEC has not discharged its burden of proof that GEOG's delay has caused the alleged loss of useful life of the Trains, balance of plant and/or logistical and customer equipment.

- (i) As regards the Trains and the balance of plant, while it does not seem implausible that "*a plant remaining inactive in severe tropical conditions experiences diminishment of economic useful life*,"⁷⁷⁰ the lost period of useful life is not necessarily identical to the duration of the period of inactivity. The wear and tear of operation may be different from the effects of prolonged inactivity. IEC's own expert, Mr Lumley, testified that when a "*Plant is design[ed] to have an operating life of 20 years*," these twenty years start running "*[w]hen you first start running -- start -- after commissioning*."⁷⁷¹ Mr Helsen's assessment made "*from an accounting perspective*"⁷⁷² is not a substitute for an independent expert assessment of the actual loss of useful life in terms of time and money.
- (ii) Similar considerations are applicable to the logistical and customer equipment. Mr Helsen again performs an assessment "*from an accounting perspective*"⁷⁷³ for which he assumes certain "*depreciations periods*" and "*residual values*" which he takes from IEC's cash flow

⁷⁶⁶ See above, §728.

⁷⁶⁷ Rs' PHB1, ¶145.

⁷⁶⁸ Exhibit CLA-202, *414.

⁷⁶⁹ See definition of "Plant" in Clause 1 of Equipment Contract.

⁷⁷⁰ Exhibit CWS-5, ¶59.

⁷⁷¹ Tr. Day 6, 158:2-7.

⁷⁷² Exhibit CWS-5, ¶60.

⁷⁷³ Exhibit CWS-5, ¶61.

modelling but for which he provides no support. The Arbitral Tribunal has no reason to assume that these accounting values⁷⁷⁴ match real life circumstances.

(3) OPEX expenses wasted during delay

(a) IEC's position

819. In the Statement of Claim, IEC claims compensation for USD 53,864,187.59 in operational expenses “*that should have been offset by positive cashflow beginning January 2016.*”⁷⁷⁵ This figure includes expenses for the period from 1 April 2016 to 31 December 2018.⁷⁷⁶

820. In the Statement of Reply, IEC updated this figure⁷⁷⁷ to USD 75,084,758, by including the year 2019 up to 15 November, “*and by excluding all financial income and charges.*”⁷⁷⁸

821. To GEOG’s criticism of the items individual expenses making up this claim IEC replies in the Claimants’ Second Post-Hearing Brief as follows:

[...] BHGE argues that Mr. Helsen’s ‘OPEX incurred during delay’ category ‘has little to do with ‘hiring security staff for the Rumuji site repair and maintenance staff, medical staff, as well as accounting, HR and other back office staff.’’

But Mr. Helsen never claimed that the wasted OPEX was incurred solely for those purposes. Rather, he was providing examples to the Tribunal. In his first witness statement, Mr. Helsen explained that because Claimants’ only activity was the LNG business, all the operational costs incurred by Claimants related to the LNG project.

And because BHGE is years late in delivering Trains 1 and 2, all of those expenses incurred by Claimants have been unnecessary and wasted. If BHGE had told Claimants that the Trains would not be ready for delivery until mid-2020, Claimants would have had no reason to incur any OPEX before late 2019.”⁷⁷⁹

822. And with regard to GEOG’s charge that the quantum is not sufficiently supported by documents, IEC submits the following:

[...] Mr. Helsen explained in his first witness statement how he calculated the wasted OPEX. BHGE then had the opportunity to seek documents during the document

⁷⁷⁴ Columns K and L in the second tab of the Excel file in appendix Z to Exhibit CWS-10.

⁷⁷⁵ SoC, ¶404.

⁷⁷⁶ See Exhibit CWS-5, ¶¶64-65.

⁷⁷⁷ SoR, ¶¶549, 551; see also Cs’ PHB1, ¶121.

⁷⁷⁸ Exhibit CWS-10, ¶70.

⁷⁷⁹ Cs’ PHB2, ¶¶102-104.

exchange phase but did not do so. BHGE cannot now complain about the result of that failure.

But even more, responding to BHGE's criticisms in its SoD, Mr. Helsen's second witness statement provides the support BHGE claims is missing. Mr. Helsen provided updated calculations, along with excerpts from the relevant pages of Claimants' Group Accounts and an itemized list of OPEX from 2019. Mr. Helsen further explained that those Group Accounts and financial records were reviewed by KPMG and given clean audit opinions.”⁷⁸⁰

823. As mentioned above,⁷⁸¹ in the Submission on Fees and Costs of 29 May 2020, IEC revised the amount of this damages item to USD 66,108,090.

(b) GEOG's position

824. In the Respondents' First Post-Hearing Brief, GEOG criticizes that “[t]he item 'OPEX incurred during delay' (\$75 million) has little to do with 'hiring security staff for the Rumuji site, repair and maintenance staff, medical staff, as well as accounting, HR and other back office staff' ”⁷⁸² and it points at the following items which it considers objectionable:

- i. Legal fees to arbitration counsel (\$4.4 million);*
- ii. Consulting fees to tax advisors (\$63,000);*
- iii. Travel expenses (\$105,000);*
- iv. Insurance costs incurred by Greenville for terrorism and political violence (Naira 102 million);*
- v. Advertisement, publications and promotions costs incurred by Greenville (Naira 57 million);*
- vi. Depreciation of Greenville's equipment already included in the claim for Loss of Useful Life (approximately Naira 250 million);*
- vii. Legal fees paid by Greenville (Naira 405 million) and other professional fees (Naira 298 million);*
- viii. Recruitment fees incurred by Greenville (Naira 1.1 million);*

⁷⁸⁰ Cs' PHB2, ¶¶105-106.

⁷⁸¹ ¶308.

⁷⁸² Rs' PHB1, ¶156.

- ix. Travelling and accommodations costs for the sales personnel incurred by Greenville (Naira 319 million); and
- x. \$1 million of costs incurred by West African Electric.”⁷⁸³

825. Moreover, GEOG criticizes the lack of documentary support for the damages items that make up this claim.⁷⁸⁴

(c) Arbitral Tribunal’s analysis

- 826. This claim is for indirect damages. If IEC were claiming for the prolongation costs for the protracted installation and commissioning of the Trains, this might be considered to be direct damages. However, Mr Helsen explains that “[t]hese operating expenses are mainly costs of personnel that we had to employ to be ready for operations (such as a commercial team, security staff, repair and maintenance staff).” And: “In the normal circumstances such costs would have been compensated by operating income of the sale of LNG which, due to the delay in commissioning of the plants, did not happen.”⁷⁸⁵ It is thus clear that IEC is not claiming for the increased costs of installation and commissioning.
- 827. In addition, the claim is in substance a claim for loss of revenues, which is excluded by Clause 19.3 of the Equipment Contract. IEC’s description of this damages item as “operational expenses that should have been offset by positive cashflow beginning January 2016”⁷⁸⁶ and Mr Helsen’s similar portrayal as “costs [that] would have been compensated by operating income of the sale of LNG”⁷⁸⁷ are most telling. These operational expenses were not caused by GEOG’s delay. They are sunk costs, i.e., they would have been incurred in any event, regardless of whether GEOG performed its obligations on time. What in fact constitutes the damages is the absence of revenue to offset those expenses.
- 828. The Arbitral Tribunal notes that, even if one were to consider that this claim is not excluded, IEC has not discharged its burden of proof as regards the quantum. The basis for this 66 million claim is meagre at best. Mr Helsen explains that he calculated these damages as the “accumulated deficit [...] as it] relates to the delay period” as shown in the “Group accounts,” the rationale being that the group’s only activity is the LNG project and, hence, all costs relate to delay in operation of the Trains.⁷⁸⁸ This approach has several problems:

⁷⁸³ Rs’ PHB1, ¶156; see also Rs’ PHB2, ¶77(ii).

⁷⁸⁴ Rs’ PHB1, ¶157; see also Rs’ PHB2, ¶77(ii).

⁷⁸⁵ Exhibit CWS-5, ¶64.

⁷⁸⁶ SoC, ¶404.

⁷⁸⁷ Exhibit CWS-5, ¶64.

⁷⁸⁸ Exhibit CWS-5, ¶64.

- (i) It includes costs by three entities: IEC, Greenville and West Africa Electric NV.
- (ii) The claim considers the operating expenses in the period from 2014 through 2019, i.e. the complete period between the due Delivery Date and the commencement of operation, to be wasted, i.e. 6 years. However, Mr Helsen himself considers that the operation was delayed by under 4 years,⁷⁸⁹ because, but for GEOG's delay, IEC would not have commenced operation of the Trains until January 2016, (according to Mr Helsen)⁷⁹⁰ or June 2016 (according to Mr Lapuerta).⁷⁹¹ Hence, the operating expenses of less than four years were wasted, out of the six years assumed by Mr Helsen.
- (iii) The costs in the year 2019 (the only year for which Mr Helsen provided a breakdown)⁷⁹² include items like "*Charitable Contributions*," "*Business Facilitation Cost*" and "*Legal Fees*." GEOG claims that these legal fees, in an amount of USD 4,447,956.14 are "*legal fees to arbitration counsel*,"⁷⁹³ which seems plausible. Indeed, IEC acknowledged in the Claimants' Submission on Fees and Costs of 29 May 2020 that "*Mr. Helsen's 'OPEX incurred during delay' category of damages included \$8,976,667.67 in 2018 and 2019 fees and expenses.*"⁷⁹⁴ While this issue seems to thereby have been solved, it illustrates the reasons for the Arbitral Tribunal's unwillingness to consider awarding a USD 66 million claim on the basis of a black-box calculation performed by a non-independent witness.
- (iv) Otherwise, the costs are supported only by a most basic summary by Mr Helsen⁷⁹⁵ and extracts of the consolidated financial statements for 2014-2018.⁷⁹⁶ IEC's argument that "*BHGE then had the opportunity to seek documents during the document exchange phase but did not do so*"⁷⁹⁷ does not relieve it from its burden of proof.
- (v) The costs include depreciation of Greenville's equipment already included in loss of useful life claim.⁷⁹⁸

⁷⁸⁹ Exhibit CWS-10, ¶58.

⁷⁹⁰ See Exhibit CWS-5, ¶35; see also Exhibit CER-4, ¶92 and Exhibit C-682.

⁷⁹¹ See Exhibit CER-4, ¶91.

⁷⁹² Appendix CC to Exhibit CWS-10.

⁷⁹³ See Rs' PHB2, p. 34, Row 9, 1st roadblock.

⁷⁹⁴ Claimants' Submission on Fees and Costs of 29 May 2020, ¶18.

⁷⁹⁵ Appendix AA to Exhibit CWS-10.

⁷⁹⁶ Appendix BB to Exhibit CWS-10.

⁷⁹⁷ Cs' PHB2, ¶105.

⁷⁹⁸ See Rs' PHB2, p. 34, Row 9, 1st roadblock.

(4) Loss of financial income during delay

(a) IEC's position

829. In the Statement of Claim, IEC claims USD 33,954,562.62 in compensation for the loss of financial income during the delay. It explains that "*IEC has invested funds in this project with expectation of return based on GE's promises*"⁷⁹⁹ and that "*[h]ad they not done so, the US\$500 million invested (or held in cash to be ready for investment) would have earned a return.*"⁸⁰⁰ IEC explains that the amount claimed is the result of applying "*a conservative rate of US Libor over 1 year*" to the invested amount.⁸⁰¹

830. In the Statement of Reply, IEC updated this figure⁸⁰² to USD 44,796,281.94, by including the year 2019 up to 15 November, "*and by excluding all financial income and charges.*"⁸⁰³

(b) GEOG's position

831. In the Respondents' First Post-Hearing Brief, GEOG argues as follows with respect to this claim:

*"The so-called claim for 'Loss of financial income during delay' (\$44.8 million) deals with the damage allegedly suffered by IEC's shareholders (!) for the delay in starting up the Trains. For the sake of clarity, this is not the Respondents' interpretation of the claim; this is exactly how the claim was presented by Mr. Helsen in his First Witness Statement and how the claim was explained by Mr. Helsen at the Hearing. Again, the Respondents have nothing to add in response other than to emphasize the fact that IEC's shareholders are not parties to the arbitration, and their losses are outside the power of the Tribunal to award."*⁸⁰⁴

(c) Arbitral Tribunal's analysis

832. The claim for loss of financial income during the delay is for indirect damages and it is also specifically excluded by Clause 19.3 of the Equipment Contract for being a claim for loss of profit or revenues.

833. The Arbitral Tribunal notes that, even if one were to consider that this claim is not excluded, IEC has not discharged its burden of proof that it has in fact incurred these damages. The Arbitral

⁷⁹⁹ SoC, ¶405.

⁸⁰⁰ SoC, ¶405.

⁸⁰¹ SoC, ¶405.

⁸⁰² SoR, ¶¶549, 551; see also Cs' PHB1, ¶122.

⁸⁰³ Exhibit CWS-10, ¶81.

⁸⁰⁴ Rs' PHB1, ¶158.

Tribunal would not be disposed to awarding a USD 45 million claim on the basis of a mere calculation performed by a non-independent witness.

(5) Additional repair and replacement costs due to expiration of warranty periods

(a) IEC's position

834. In the Statement of Claim, IEC claims USD 17,639.347.26 as compensation for the loss of warranty value of equipment, including the Trains delivered by GEOG.⁸⁰⁵ IEC explains that it “determined the relevant warranty period for each piece of equipment and whether that period had expired” and that it “then considered the standard repair and spare part costs during operation of the equipment in question during the warranty period [which] must now be borne by Claimants.”⁸⁰⁶

835. To GEOG's criticism that “the impact loss of warranty [...] has been randomly set as equal to 3% of the revenues”⁸⁰⁷ IEC replies in the Claimants' Second Post-Hearing Brief that “[f]ar from being random, Mr. Helsen gave detailed reasons for the 3% rate, based on a benchmarking analysis of warranty percentages in the annual accounts of various manufacturers.”⁸⁰⁸

(b) GEOG's position

836. In the Respondents' First Post-Hearing Brief GEOG puts forward the following objection to this claim:

“Similarly, the claim ‘Impact loss of warranty’ (\$17.6 million) is not only unsupported by documents (the amount has been randomly set as equal to 3% of the revenues), it is also based on a clear misunderstanding between the warranty rights of either IEC or Greenville (since it is not clear) and the maintenance and repair costs that were avoided due to the delay. A quantum expert for direct damages, had one been engaged, would have explained to Mr. Helsen that avoided costs should be counted as savings, and deducted.”⁸⁰⁹

837. In the Respondents' Second Post-Hearing Brief, GEOG further argues that warranties generally do not cover ordinary repair and maintenance costs and that there seems to be an overlap

⁸⁰⁵ SoC, ¶407; see also Cs' PHB1, ¶124.

⁸⁰⁶ SoC, ¶407.

⁸⁰⁷ Rs' PHB1, ¶159.

⁸⁰⁸ Cs' PHB2, ¶108.

⁸⁰⁹ Rs' PHB1, ¶159.

between this claim and the claim for wasted operational expenses, which includes the cost of repair and maintenance teams.⁸¹⁰

(c) Arbitral Tribunal's analysis

838. The claim for additional repair and replacement costs due to the expiration of warranty periods refers to the expiration of warranties for both,

- (i) the Trains delivered by GEOG, and
- (ii) other third-party delivered equipment (including LNG delivery trucks and trailers, LNG storage tanks and regasification equipment for use at customer sites, fueling stations and truck stops).⁸¹¹

839. With regard to the expiry of the warranty for the Trains delivered by GEOG, IEC cannot assert vis-à-vis GEOG that the expiry of GEOG's warranty constitutes damages which GEOG is duty-bound to compensate. The mere application of valid contractual provisions agreed between two parties can logically never give rise to damages for which one party must compensate the other.

840. In addition, the Arbitral Tribunal notes that Mr Helsen's calculation assumes that the value of the warranty during a given period is equal to the "*repair and maintenance costs*".⁸¹² However, this equation is incorrect: GEOG's warranty under Clause 17 of the Equipment Contract does not cover either maintenance nor repairs that become necessary as a result of wear and tear.⁸¹³

841. The claims for expiry of the warranty of other third-party delivered equipment are claims for indirect damages and, as such, they are not covered by Clauses Clause 6.6(ii) or Clause 17.4(i) but they are in fact excluded by Clause 19.3 of the Equipment Contract.

842. The Arbitral Tribunal notes that, even if one were to consider that these claims are not excluded, IEC has not discharged its burden of proof that it has in fact incurred these damages. Mr Helsen's calculation is not supported by documents and is based merely on assumptions which remain mostly unsupported.⁸¹⁴

⁸¹⁰ Rs' PHB2, ¶77(iii).

⁸¹¹ Exhibit CWS-5, ¶70.

⁸¹² Exhibit CWS-5, ¶71, third bullet point.

⁸¹³ See Clause 17.5 of the Equipment Contract.

⁸¹⁴ Appendix DD to Exhibit CWS-10.

(6) Cash flow shortfall

(a) IEC's position

843. In the Statement of Claim, IEC claims USD 591 million in damages as calculated by its quantum expert, Mr Lapuerta.⁸¹⁵ It explains in this regard:

*"Carlos Lapuerta, a well-respected economist and expert on damages, has developed a sophisticated cash flow model that measures what Claimants are expected to earn today and what Claimants would have earned 'but for' GE's breaches. As detailed in Mr. Lapuerta's report, Claimants have suffered US\$ 591 million in damages from GE's misconduct. Mr. Lapuerta's model is conservative. His analysis is rooted in independent analysis of the market, the pricing inputs, inflationary impacts, and exchange rates. His analysis is also consistent with the cash flow models that Claimants have been using to support their investments since before they contracted with GE. The models on which Mr. Lapuerta started his analysis were not created for the purposes of this arbitration: they have been the foundation for IEC's investment of more than US\$500 million in capital since 2014. They are also the reason that IEC elected to spend almost 2x as much for GE plants so that they could be in place six to nine months earlier than plants procured from GE's competitors."*⁸¹⁶

844. In the Statement of Reply, IEC updated this figure⁸¹⁷ to USD 681 million as per Mr Lapuerta's second expert report.⁸¹⁸

845. The figure was again updated at the Hearing to USD 700 million.⁸¹⁹

846. In the Claimant's First Post-Hearing Brief, IEC posits:

*"Although loose language has been used throughout the written submissions, Mr. Lapuerta's analysis is not a lost profit analysis. Rather, his analysis calculates the difference in the present value of cash flows that are delayed due to BHGE's breaches."*⁸²⁰

⁸¹⁵ Exhibit CER-4.

⁸¹⁶ SoC, ¶395; see also SoC, ¶¶393-394; Cs' PHB1, ¶¶100-114.

⁸¹⁷ SoR, ¶¶549-550.

⁸¹⁸ Exhibit CER-10.

⁸¹⁹ Tr. Day 10, 10:11; Mr Lapuerta's presentation "Damages to IEC and Greenville from the Delay of Trains 1 and 2," used at the Hearing on 20 December 2019, p. 6; see also Cs' PHB1, ¶100.

⁸²⁰ Cs' PHB1, ¶110.

(b) GEOG's position

847. In the Statement of Defense, GEOG criticizes Mr Lapuerta's calculation as unrealistic and speculative.⁸²¹

848. In the Respondents' First Post-Hearing Brief, GEOG points out that "*the \$700 million quantified by Mr. Lapuerta includes both direct and consequential damages*" and that there is a "*lack of any clarity on how the cash flow expectations calculated in Mr. Lapuerta's two expert reports subsume the 'direct damages' purportedly quantified by the Claimants' factual witness Mr. Helsen.*"⁸²²

(c) Arbitral Tribunal's analysis

849. In the Statement of Claim, IEC seems to acknowledge that the damages calculated by Mr Lapuerta include damages excluded under the Equipment Contract. The presentation of Mr Lapuerta's damages calculation is made in the section titled "*Claimants Are Entitled to Recover Their Full Loss As A Result of GE's Misconduct*"⁸²³ and introduced with the statement "*As a result of GE's gross negligence and willful misconduct, Claimants are entitled to recover all direct and consequential damages, including lost profits.*"⁸²⁴ This is juxtaposed to the subsequent section in which it is argued that "[if] for any reason the Tribunal does not award the damages recognized in Mr. Lapuerta's report *Claimants are entitled to recover direct damages.*"⁸²⁵

850. This same juxtaposition of the damages calculated by Mr Lapuerta as lost profits and those described by Mr Helsen as direct damages can also be found in the Statement of Reply.⁸²⁶

851. However, IEC suggested at the Additional Hearing that Clause 19.3 of the Equipment Contract does not exclude the damages calculated by Mr Lapuerta because "*they did not chose in this clause to say 'loss of cash flow.'*"⁸²⁷

852. In the same vein, in the Claimant's First Post-Hearing Brief, IEC posits that "*Mr. Lapuerta's analysis is not a lost profit analysis*" but rather a "*calculation of] the difference in the present value of cash flows that are delayed due to BHGE's breaches.*"⁸²⁸

853. IEC's late attempt to find a difference between a lost profit analysis and a cash flow shortfall analysis must fail. What the exercise performed by Mr Lapuerta substantially consists in has

⁸²¹ SoD, ¶¶200-201; see also Rs' PHB1, ¶¶137-144.

⁸²² Rs' PHB1, ¶136.

⁸²³ SoC, §IV.B.

⁸²⁴ SoC, ¶392; further, IEC repeatedly argues that it may recover its lost profits: SoC, ¶¶393-394.

⁸²⁵ SoC, ¶396.

⁸²⁶ SoR, §XI.B and §X.C.

⁸²⁷ Tr. Milan, 78:19-20.

⁸²⁸ Rs' PHB1, ¶110.

been very well described by IEC as “a sophisticated cash flow model that measures what Claimants are expected to earn today and what Claimants would have earned ‘but for’ GE’s breaches.”⁸²⁹ That is a perfect description of a loss of profits calculation.

854. Indeed, the damages calculation by Mr Lapuerta, although it incorporates expenses into the model that may qualify as direct damages,⁸³⁰ is essentially a loss of profits calculation.
855. The Arbitral Tribunal thus finds that this claim is not a claim for direct damages and that it is further excluded by Clause 19.3 of the Equipment Contract, for being a claim for loss of profits.

(7) Conclusion

856. Except for IEC’s claim for the loss of auxiliary products and containers for drying process, which is a claim for direct damages and is to be awarded in full, all other claims for damages associated with delayed operation are to be dismissed.

C. Fraud claims

1. IEC’ position

857. IEC claims USD 158,000,000 in damages on the grounds that GEOG fraudulently induced it to enter into the Equipment Contract and the Services agreement and that it committed fraud in misrepresenting its abilities during performance of the Equipment Contract.⁸³¹
858. The factual allegations underlying these claims are essentially the same on which IEC bases its allegation of willful misconduct to argue that the limitation of liability provisions are not to be applied, namely: (i) GEOG’s dishonesty regarding the delivery period and (ii) misrepresentations during project execution. These allegations have been described above.⁸³²
859. IEC argues that its fraud claims and breach-of-contract claims are not duplicative as the fraud damages are distinct from and independent of the breach-of-contract damages.⁸³³

2. GEOG’ position

860. With respect to fraudulent inducement, GEOG argues in the Statement of Defence that IEC failed to prove any misrepresentation or material omission with respect to GEOG’s technical

⁸²⁹ SoC, ¶395.

⁸³⁰ Rs’ PHB2, ¶25; Tr. Day 10, 112:17-19 and 114:1; Sheet A2 of Exhibit C-1176; Tr. Day 10, 114:2-18, 121:10-14.

⁸³¹ SoC, ¶¶343-382; 408-413; SoR, ¶¶5, 4th bullet, ¶¶506-523; Cs’ PHB1, ¶¶186-194; Cs’ PHB2, ¶¶135-139.

⁸³² ¶¶738(i) and 738(ii).

⁸³³ SoC, ¶348, footnote 409; ¶375; SoR, ¶¶5, fourth bullet point, 518, 523.

capabilities or intention of satisfying its contractual obligations,⁸³⁴ and that it also failed to demonstrate justifiable reliance.⁸³⁵

861. As for post-contract fraudulent misrepresentation, GEOG objects that IEC makes vague allegations but “*fai[s] to provide any evidence of false post-contract promises.*”⁸³⁶
862. In addition, GEOG asserts that IEC’s fraud claims are to be rejected as duplicative of its breach of contract claims.⁸³⁷

3. Arbitral Tribunal’s analysis

863. IEC’s claim of fraudulent inducement is based essentially on the same circumstances as its allegation –aimed at establishing willful misconduct– that GEOG knew from the outset that it would not be able to fulfill the Delivery Dates. This allegation has already been addressed and rejected above.⁸³⁸ For the same reasons, IEC’s claim of fraudulent inducement is dismissed.
864. With regard to IEC’s claim of fraud during performance, the Arbitral Tribunal finds that IEC has failed to point at specific misrepresentations by GEOG about its abilities, and to prove that IEC chose not to terminate the Equipment Contract as a consequence of its reliance on such misrepresentations. The allegation that “*GE/BHGE continued to conceal its lack of capacity and technical inability to complete performance on time*”⁸³⁹ is too vague to serve as the basis of a finding of fraud. The only somewhat specific misrepresentation invoked by IEC is that GEOG “*failed to disclose their knowledge of the cold box redesign and defects until late 2016.*”⁸⁴⁰ The Arbitral Tribunal has already examined this issue and it has concluded that the process design was not defective.⁸⁴¹
865. Consequently, IEC’s fraud claims are dismissed.

D. Claims for declaratory relief

866. The Arbitral Tribunal has determined that GEOG breached the Equipment Contract:
 - (i) It failed to deliver the Trains by their respective Delay Limit Date.⁸⁴²

⁸³⁴ SoD, ¶¶182(i), 183-189.

⁸³⁵ SoD, ¶¶182(ii), 190-193.

⁸³⁶ SoD, ¶172.

⁸³⁷ SoD, ¶¶173, 194; Rs’ PHB1, ¶75.

⁸³⁸ §X.B.3.d(3)(a)i.

⁸³⁹ SoR, ¶522.

⁸⁴⁰ SoR, ¶519.

⁸⁴¹ See above, §X.B.2.b(1)(c)ii.

⁸⁴² See above, ¶436.

(ii) It delivered Trains with, among others, (i) multiple defects (incomplete and piecemeal delivery of the modules),⁸⁴³ (ii) a defective soft-starter solution,⁸⁴⁴ (iii) defective pipe supports⁸⁴⁵ and (iv) defective MRC motor cables,⁸⁴⁶ and it failed to remedy those defects within a reasonable time.⁸⁴⁷

867. Therefore, the declaration sought by IEC that GEOG has breached the Equipment Contract is to be granted.⁸⁴⁸

868. In support of its requests for declarations that GE Nigeria has breached the Services Agreement⁸⁴⁹ and that GEOG has breached the Guarantee⁸⁵⁰ IEC alleges the following:

*"The personnel GE provided to perform the promised services were neither competent nor knowledgeable about LNG production plants, particularly the set-up and installation of the Trains. GE's on-site personnel were not helpful in resolving the issues that Claimants confronted during the set-up and installation of the Trains, especially the issues that arose due to GE's failure to provide fully-modularized Trains"*⁸⁵¹

869. The issue was given little attention by IEC (who only seeks declaratory relief in this regard). Mr Srinivasanand has voiced complaints about the GE Nigeria personnel not being helpful.⁸⁵² However, the Arbitral Tribunal finds that this claim is not sufficiently substantiated.

870. Consequently, IEC's requests for declarations that GE Nigeria has breached the Services Agreement and that GEOG has breached the Guarantee are dismissed.

871. The Arbitral Tribunal has determined that there is no sufficient evidence for a finding that GEOG fraudulently induced IEC to enter into the Equipment Contract or that it defrauded IEC during the performance of the said contract. Thus, IEC's claim for a declarations in this respect are dismissed.⁸⁵³

872. IEC's request for declarations of liability for future, unquantified, additional damages are dismissed.⁸⁵⁴ The Arbitral Tribunal finds that its mandate, as per the arbitration agreements and

⁸⁴³ See above, §X.B.3.a(3)(b)i.

⁸⁴⁴ See above, §X.B.2.d(3)(a).

⁸⁴⁵ See above, §X.B.3.a(3)(c)ii.

⁸⁴⁶ See above, §X.B.3.a(3)(c)iii.

⁸⁴⁷ See above, ¶¶576, 718(i), 718(ii), 684.

⁸⁴⁸ Cs' PHB1, ¶235(c); the same request with regard to the BHGE Entities is already rejected for lack of jurisdiction.

⁸⁴⁹ Cs' PHB1, ¶235(d).

⁸⁵⁰ Cs' PHB1, ¶235(e); the same request with regard to the BHGE Entities is already rejected for lack of jurisdiction.

⁸⁵¹ SoC, ¶342; see also ¶¶292-296; SoR, ¶¶45, 220; Cs' PHB1, ¶¶90-91.

⁸⁵² Exhibit CWS-2, ¶¶3.1-3.5, 6.1-6.4.

⁸⁵³ Cs' PHB1, ¶235(l) and (m); the same requests with regard to the BHGE Entities and with regard to Greenville are already rejected for lack of jurisdiction.

⁸⁵⁴ Cs' PHB1, ¶235(j) and (k).

the Rules, is to resolve actual disputes based on proven past events. IEC has no legitimate interest in generic declarations regarding possible future events.

XI. COUNTERCLAIMANTS' COUNTERCLAIMS

A. Equipment contract price

1. GEOG's position

873. In the Statement of Claim, GEOG claims USD 4,750,000 as payment of the contract price for the milestone of Mechanical Completion of Train 1, which it claims was completed on 19 May 2018, when the last of the 18 sub-systems included in GEOG's Scope of Supply was certified as completed by IEC.⁸⁵⁵

874. With respect to the activities carried out by GEOG on Train 1 after May 2018, GEOG provides the following explanation:

*"It must be highlighted that a majority of the recent activities carried out by GEOG on its equipment on site are relatively normal issues that arise during commissioning. The reason they are being addressed now, three years after delivery of Train 1, is not related to any failure in GEOG's supply, but purely because of the fact that due to IEC's continuous failings the Rumuji Plant was not ready to start these commissioning activities until just a few months ago."*⁸⁵⁶

875. In the Statement of Defense, GEOG revised its claim for payment of the Equipment Contract price for a total of USD 20,362,378, which is broken down as follows:⁸⁵⁷

- (i) Spare Parts: USD 412,378.
- (ii) Train 2 Ready to Ship: USD 950,000.
- (iii) Mechanical Completion of Trains 1 and 2: USD 9,500,000.
- (iv) Taking Over of Trains 1 and 2: USD 9,500,000.

876. On the spare parts, GEOG submits that "*IEC issued two separate purchase orders for operating two year spares and commissioning/startup spares in December 2016, for the amount of \$3,500,000*"⁸⁵⁸ and that "*[t]he amount of \$412,378 remains outstanding under such purchase orders.*"⁸⁵⁹

⁸⁵⁵ SoCC, ¶¶169-170; see also SoCC, ¶¶126-128, 131-132.

⁸⁵⁶ SoCC, ¶133.

⁸⁵⁷ SoD, ¶¶216, 233.

⁸⁵⁸ SoD, ¶227.

⁸⁵⁹ SoD, ¶228; see also Rs' PHB1, ¶23.

877. With respect to the Mechanical Completion milestone for Train 1, GEOG repeats that with IEC certifying the 18 sub-systems of Train 1 as complete, “*there can be no doubt that IEC approved the Mechanical Completion of Train 1.*”⁸⁶⁰ In the alternative, it argues that, as per the definition of Mechanical Completion in Clause 1 of the Equipment Contract,⁸⁶¹ Mechanical Completion for Trains 1 is deemed to have been achieved on 24 July 2016,⁸⁶² because GEOG was prevented from achieving Mechanical Completion for reasons beyond its control.⁸⁶³ In particular, GEOG asserts that,

“*[...] IEC prevented GEOG from achieving Mechanical Completion by:*

- i. altering and removing parts and systems that had been certified as complete by IEC for use on IEC’s Train 3, thereby destroying the traceability of materials and workmanship and undermining GEOG’s ability to achieve a Mechanical Completion certificate;*
- ii. failing to preserve materials following delivery to site, including but not limited to a failure to properly store, install and maintain the Trains;*
- iii. refusing to acknowledge that the provision of MRC cables and VFD is not within GEOG’s scope of supply under the Equipment Contract;*
- iv. preventing GEOG from completing any make good activity needed to rectify warranty defects associated with the piping supports;*
- v. refusing to provide the needed inputs associated with the BOPs out of GEOG scope of supply to complete the flare network design review; and*
- vi. denying GEOG to perform a 3D laser scanning of the plant at GEOG costs without any meaningful reason.”*⁸⁶⁴

878. With regard to Train 2, GEOG argues that “*the achievement of Train 2 Mechanical Completion is demonstrated by the 17 certificates signed for the completion of the relevant subsystems*” and that “*GEOG would have reached the mechanical completion of the last outstanding certificate had IEC not interfered ‘and significantly aggravated GEOG Scope of Work by removing*

⁸⁶⁰ SoD, ¶219.

⁸⁶¹ “[...] In the event Seller is prevented from Mechanical Completion due to reasons beyond its control, Mechanical Completion shall mean five (5) months after the Delivery Date.”

⁸⁶² SoD, ¶223.

⁸⁶³ SoD, ¶220.

⁸⁶⁴ SoD, ¶220.

equipment and invalidating those system mechanical completion certificates.”⁸⁶⁵ Thus, GEOG posits that Mechanical Completion of Train 2 is to be deemed achieved as of 28 August 2016.⁸⁶⁶

879. Finally, GEOG argues:

“Further or in the alternative, IEC’s refusal to acknowledge and compensate GEOG for Mechanical Completion of Train 1 and 2 is a breach of IEC’s obligation under Clause 1.7 of the Equipment Contract to act reasonably and fairly, in circumstances where:

- i. IEC has certified completion of all 18 sub-systems of Train 1;*
- ii. since certifying the sub-systems, IEC has (without notice to and permission from GEOG) removed and altered certain parts of Train 1 and Train 2; and*
- iii. the contractual definition of Mechanical Completion, as set forth in clause 1 of the Equipment Contract, does not require the submission of specific documentation (particularly where such documentation would not prevent the safe operation of the Trains).”⁸⁶⁷*

880. With respect to the Taking Over milestone, GEOG also relies on the definition of the term in Clause 1 of the Equipment Contract,⁸⁶⁸ to argue that the milestone should be deemed achieved for the same reasons as the Mechanical Completion milestone.⁸⁶⁹

881. GEOG’s position on the MRC motor cables, the piping supports (stress tests) and the VFD has been described above.⁸⁷⁰ With regard to the remaining two issues which IEC invokes as an impediment to Mechanical Completion, GEOG submits the following:

(i) Flare design:

[...] although it is true that the slope of some segments of the flare system do not comply with the design standard, this does ‘not require remedial work’ and IEC could have accepted the solution proposed by GEOG.”⁸⁷¹

⁸⁶⁵ SoD, ¶221.

⁸⁶⁶ SoD, ¶223.

⁸⁶⁷ SoD, ¶224.

⁸⁶⁸ “In the event Seller is prevented from meeting the conditions set out in Clause 26.1 due to reasons beyond Seller’s control, Taking Over shall mean eight (8) months after the Delivery Date.”

⁸⁶⁹ SoD, ¶¶225-226; see also Rs’ PHB1, ¶¶26-27.

⁸⁷⁰ ¶¶616, 618(MRC motor cables), ¶¶617, 619 (piping supports), ¶¶558-561 (VFD).

⁸⁷¹ SoD, ¶63(iii); in the SoCC GEOG has asserted: “Moreover, when GEOG reviewed the isometrics of the flare lines to verify whether the slope of the piping was correct, GEOG found that the poor performance of IEC’s mechanical contractor in building the flare line resulted in non-compliance with GEOG’s design. As a result, the pipes contain an inverted slope creating a low pocket, in which liquids that are supposed to flow freely in the pipe can accumulate in the low points of the flare piping due to condensation of the vapor. This can lead to a slug of liquid being sent to the flare while vapor is being released and can potentially cause ‘burning rain’, excess back pressure, and possible large reaction forces in the header.” (SoCC, ¶155).

(ii) Pressure relief valves ("PRVs"):

GEOG maintains that the problem is to be fixed by fitting back flow preventers to the affected PRVs.⁸⁷² It further explains that a back flow preventer is "*a dev[c]e used during maintenance to isolate the valve from the rest of the plant and allow the maintenance of it*".⁸⁷³ According to the GEOG, this accessory "*does not affect the functionality of the valve during operation.*"⁸⁷⁴

882. In the Respondents' First Post-Hearing Brief, GEOG submits the following two reasons for having been prevented by IEC from achieving Mechanical Completion, in addition to those set forth in paragraph 220 of the Statement of Defense:⁸⁷⁵ "*(i) IEC's failure to preserve the equipment following delivery on site in 2015 and 2016" and "(ii) IEC's cannibalization of Train 2 throughout 2018 and 2019.*"⁸⁷⁶

883. Moreover, based on Mr Van den Broeke's testimony at the Hearing that he thought IEC would be completing the Trains "*in the next two to three months,*"⁸⁷⁷ GEOG argues that Mechanical Completion was reached by the time the Respondents' First Post-Hearing Brief was filed, i.e. in March 2020.⁸⁷⁸

884. With regard to the flare design issue, GEOG asserts the following:

*"The Parties' experts have offered very different opinions on this topic. GEOG's expert believes there is no issue or defect with the flare as designed and built. IEC's expert disagrees. Both sides' experts do agree, however, that whatever issue may potentially have existed was fixed some time ago during the construction of the flare."*⁸⁷⁹

2. IEC's position

885. In the Statement of Claim, IEC objects to GEOG's contention that Train 1 is mechanically complete. It points out that the Equipment Contract defines Mechanical Completion as the Train being "*mechanically, electrically and structurally installed on Site and connected, in accordance with the Technical Documentation, but excluding ... (ii) any minor items which do not materially affect the operation or safety of the Plant,*"⁸⁸⁰ and that this definition has not been met.⁸⁸¹

⁸⁷² Attachment to the Respondents' answer of 21 August 2019 to the Claimants application for interim relief, p. 3.

⁸⁷³ Attachment to the Respondents' answer of 21 August 2019 to the Claimants application for interim relief, p. 3.

⁸⁷⁴ Attachment to the Respondents' answer of 21 August 2019 to the Claimants application for interim relief, p. 3.

⁸⁷⁵ See above, ¶877.

⁸⁷⁶ Rs' PHB1, ¶25.

⁸⁷⁷ Tr. Day 2, 106:23.

⁸⁷⁸ Rs' PHB1, ¶¶2, 25; see also Rs' PHB2, ¶103.

⁸⁷⁹ Rs' PHB1, ¶121.

⁸⁸⁰ Equipment Contract, Clause 1.

⁸⁸¹ SoC, ¶428.

886. IEC argues that the “[t]he fact that GE was able to obtain certifications for the 18 sub-systems would not mean that the Plant was mechanically complete if, in fact, there are defects that do materially affect its operation and safety.”⁸⁸²

887. And it points at five such defects which impede Mechanical Completion:

“[...] (i) the cables to the MR Compressor (‘MRC’) motors overheat and ‘are not suitable’; (ii) there are at least 37 pipeline systems in each train (74 in total) that are defective and require ‘make good’ actions [that] must be implemented’; (iii) GE’s system to start up the MRC motors does not work and, therefore, the Trains are inoperable until GE provides the required VFD solution; (iv) there are 22 PRVs that ‘have back-pressure issues [and] requ[ire] a mitigation action’; (v) due to GE’s design of the connection points for the pipeline between the pipe rack and the flare stacks [t]here are pockets (zero-slope traits) in the flare header and piping between PRVs and flare header that must be eliminated.’ ”⁸⁸³

888. IEC’s position on the MRC motor cables, the piping supports (stress tests) and the VFD has been described above.⁸⁸⁴ With regard to the remaining two issues, IEC alleges the following:

(i) Flare design:

“GE engineering [...] was defective and design of the piping to the flares creates pockets without slope or sufficient slope. As a result, a significant risk exists that liquid traveling to the flare will collect in the pipe and hammering of liquid (i.e., a rapid change in the momentum of the liquid due to a pressure wave) may occur.

This defect presents a serious safety issue. As the Exponent Expert Report explains, ‘The purpose of these industry consensus specifications is to protect against dangerous phenomena such as ‘burning rain,’ liquid hammering, and back pressure build up in flare systems. ... Burning rain can injure workers, damage equipment, and ignite fires Liquid hammer [can] rupture the piping and/or flare tip.... Increased back pressure can cause PRVs to malfunction [which may cause] upstream equipment [to] be damaged or even rupture.’

[...]

Until GE makes the required modifications for its defect, the Trains cannot be operational.”⁸⁸⁵

⁸⁸² SoC, ¶430; see also SoR, ¶554.

⁸⁸³ SoC, ¶¶429; see also SoR, ¶553, where IEC explains that these issues also affect Train 2.

⁸⁸⁴ ¶¶600-602 (MRC motor cables), ¶¶603-608 (piping supports), ¶¶550-557 (VFD).

⁸⁸⁵ SoC, ¶¶185-189; see also SoR, ¶¶152-189; Cs’ PHB1, ¶¶82-85.

(ii) PRVs:

*"The valve issues are still not over. During the February 2019 meeting in Rumuji, GE conceded that 22 PRVs need to be retrofitted with back pressure relief devices that were not in the engineered design. Once installed, GE will then have to calibrate and recertify each of these PRVs. GE has not yet begun any of this work."*⁸⁸⁶

889. In the Statement of Reply, IEC addresses GEOG's arguments that IEC prevented it from achieving Mechanical Completion as follows:

(i) IEC's cannibalization:

*[...] as Claimants previously told GE/BHGE, 'nothing was removed from Train 1' at all, much less anything that could prevent GE/BHGE from achieving Mechanical Completion."*⁸⁸⁷

(ii) IEC's preservation of materials:

*[...] Claimants' alleged failure 'to preserve materials following delivery to site' has not prevented GE/BHGE from achieving Mechanical Completion. Claimants 'were keenly aware of the need to properly handle the materials when received and during the erection process' and did so effectively and timely. In contrast, GE/BHGE's own disorganized and loose shipments and failure to tropicalize the Trains have stymied its ability to achieve Mechanical Completion. Regardless, GE/BHGE provides no evidence that Claimants' alleged failure to preserve materials prevents Mechanical Completion — unlike the numerous ongoing defects which GE/BHGE must correct before the Trains are safe and operational."*⁸⁸⁸

(iii) IEC preventing rectification of piping supports:

*[...] Claimants had good reason to deny GE/BHGE's performance of a 3D laser scanning: (i) GE/BHGE already had a site survey available to it and (ii) such scanning would have further set back the Mechanical Completion of Train 1 by requiring removal of insulation that would have to be reinstalled at significant time and expense. Had GE/BHGE provided defective-free Trains as it was contractually obligated, there would have been no need to perform a 3D laser scan because Claimants erected the Trains — while GE/BHGE was on site —in accord with GE/BHGE's design."*⁸⁸⁹

⁸⁸⁶ SoC, ¶256; see also SoR, ¶¶190-193.

⁸⁸⁷ SoR, ¶557.

⁸⁸⁸ SoR, ¶558.

⁸⁸⁹ SoR, ¶562.

(iv) Inputs for flare network design review:

[...] Claimants have not refused to provide inputs associated with the BOP necessary for GE/BHGE to complete the flare network design, as GE claims. To the contrary, the parties engaged in several, multi-day HAZOPs in mid-2017 during which a full and complete review of the entire Rumuji site, including not just Trains 1 and 2 but also all BOP systems and Train 3, was conducted and approved by BHGE/GE's engineers. No changes to the site have occurred since these HAZOPs. Thus, as of the final HAZOP in September 2017, GE/BHGE was in possession of all inputs necessary to complete the flare network design that it agreed to provide under the July 2015 agreement. Furthermore, GE/BHGE frustrated the efforts of Softec, one of Claimants' technical advisors, to resolve outstanding flare-related issues by refusing to provide its detailed calculations in response to Softec's queries.”⁸⁹⁰

890. In the Claimant's Second Post-Hearing Brief, IEC argues that it “~~defies~~ commonsense”⁸⁹¹ that GEOG would “claim millions of dollars in payment for milestones it concedes Claimants (as opposed to itself) are achieving.”⁸⁹² And it adds that this would be contrary to Clause 7.1 of the Equipment Contract (which stipulates that the contract price is consideration for performance by GEOG of all its obligations)⁸⁹³ and also to New York law, “which requires a party alleging breach of contract to demonstrate it has performed its own obligations.”⁸⁹⁴

891. Further to the Arbitral Tribunal's questions to the Parties in Procedural Order No. 10, IEC submitted the following:

“Due to the COVID-19 pandemic, Trains 1 and 2 are not currently in operation. The mechanical aspects of the necessary ‘make-good’ elements (i.e., installation of the VFD, switching the incorrect cables, remediating the stress defects) were completed by Claimants on Train 1 in early 2020, and with a few minor exceptions, have also been completed on Train 2. However, because of GE’s abandonment of the project, the work to test, commission and start-up the Trains requires that Claimants secure assistance from other experts, including OEM technicians, all of whom are located outside Nigeria. Claimants have been unable to arrange for that expert/technical assistance given the national restrictions and limitations on international air travel that began being

⁸⁹⁰ SoR, ¶561.

⁸⁹¹ Cs' PHB2, ¶146.

⁸⁹² Cs' PHB2, ¶145.

⁸⁹³ Cs' PHB2, ¶146.

⁸⁹⁴ Cs' PHB2, ¶147.

implemented worldwide in February, and include the ongoing lockdown in Nigeria, which commenced in March.”⁸⁹⁵

3. Arbitral Tribunal’s analysis

a. Spare Parts

892. In support of its allegation that IEC purchased two year spares and commissioning/startup spares for the amount of USD 3,500,000, GEOG submitted two purchase orders of 28 December 2016⁸⁹⁶ and a change order of 31 March 2017,⁸⁹⁷ as well as Mr Pagliaro’s testimony.⁸⁹⁸ And in support of its allegation that the amount of USD 412,378 remains outstanding, GEOG submitted an invoice of 6 March 2019⁸⁹⁹ and a Credit Invoice of 7 March 2019,⁹⁰⁰ as well as a payment reminder of 17 May 2019.⁹⁰¹

893. IEC has not denied any of the foregoing. Thus, the Arbitral Tribunal considers this claim to be sufficiently substantiated.

894. The amount became due on 6 April 2019.

b. Train 2 Ready to Ship

895. Under the Equipment Contract IEC undertook to pay a price in consideration for the Trains sold and delivered by GEOG.⁹⁰² Pursuant to Clause 7.1 of the Equipment Contract, such price was to be paid in accordance with a payment schedule, which stipulates that certain percentages shall be due thirty days from receipt of an invoice following the completion of certain milestones and receipt of all the relevant documentation.

896. One of those milestones is the “Plant Ready to Ship” milestone (the last item within the “Fabrication” group) upon which 2% (10% of 20%) of the Contract Price, i.e. USD 950,000, per Train, became due.

897. As explained above,⁹⁰³ Train 2 was delivered on 28 March 2016. It follows that it was “Ready to Ship” on that same date.

⁸⁹⁵ Claimants’ Response to Procedural Order No. 10, of 30 July 2020, p. 2.

⁸⁹⁶ Exhibits R-196 and R-197.

⁸⁹⁷ Exhibit R-198.

⁸⁹⁸ Exhibit RWS-7, ¶28.

⁸⁹⁹ Exhibit R-199.

⁹⁰⁰ Exhibit R-200.

⁹⁰¹ Exhibit R-243.

⁹⁰² See Clause 5 of the Equipment; see also Clause 3 of Appendix A: “*Contract Seller’s Scope of Supply for the Plants includes process design, engineering design, procurement and module fabrication for the ‘Natural Gas Liquefier Units’.*”

⁹⁰³ ¶436.

- 898. On 16 September 2016, GEOG issued an invoice for, among others, USD 950,000 for "Train 2-Plant Ready to Ship."⁹⁰⁴
- 899. Thus, payment for the "Plant Ready to Ship" milestone for Train 2 became due on 16 October 2016.

c. Mechanical Completion of Trains 1 and 2

- 900. Clause 1 of the Equipment Contract defines "Mechanical Completion" as follows:

"Mechanical Completion" means that a Plant has been mechanically, electrically and structurally installed on Site and connected, in accordance with the Technical Documentation, but excluding (i) Commissioning, (ii) any minor items which do not materially affect the operation or safety of the Plant and (iii) the introduction of gas, fluids and/or electricity. In the event Seller is prevented from Mechanical Completion due to reasons beyond its control, Mechanical Completion shall mean five (5) months after the Delivery Date."

(1) Whether Mechanical Completion was achieved in September 2016 or May 2018

- 901. The Arbitral Tribunal rejects GEOG's allegations that Train 1 was mechanically completed either in September 2016⁹⁰⁵ or in May 2018.⁹⁰⁶ While the "Certificates of Assembly Completion" signed by IEC for all sub-systems of Train 1 are circumstantial evidence for Mechanical Completion of Train 1, the Arbitral Tribunal finds that there is sufficient evidence to the contrary.
- 902. In this regard, IEC has raised five issues which, in its view, negate Mechanical Completion.
- 903. These five issues are analyzed below.

(a) MRC motor cables

- 904. As explained above,⁹⁰⁷ the MRC motor cables supplied by GEOG were in fact undersized.
- 905. The undersized MRC Cables meant that the Trains could not be safely operated at the capacity they were designed for. Hence, the operation and safety of the Trains was affected, which prevents Mechanical Completion, as per the term's contractual definition.

⁹⁰⁴ Exhibit R-185; the Respondents explain in this regard: "Due to the impossibility of collecting such amounts, and to comply with requirements under the Sarbanes-Oxley Act, GEOG withdrew the invoices and issued credit invoices on November 30, 2016" (SoD, ¶218).

⁹⁰⁵ See SoD, ¶217, and Exhibit R-184.

⁹⁰⁶ See SoCC, ¶¶126, 170; SoD, ¶219; Rs' PHB1, ¶25; and Exhibits R-79 and R-81.

⁹⁰⁷ §X.B.3.a(3)(c)iii.

(b) Piping supports (stress tests)

906. As explained above,⁹⁰⁸ it is clear to the Arbitral Tribunal that the piping defects, which were present in February 2019, were not minor but materially affected the operation and safety of the Trains and thus prevented the attainment of Mechanical Completion in 2016 or 2018.

(c) VFD

907. As explained above,⁹⁰⁹ GEOG is liable for the suitability of the soft-starter to start the MRC's supplied by GEOG.

908. Until an effective starting system, i.e. the VFD, was installed, the Trains could not be operational.⁹¹⁰

(d) Flare design

909. In the Statement of Counterclaim, GEOG asserted that IEC's construction of the flare lines was poor and that as a result the pipes "*contain an inverted slope creating a low pocket, in which liquids that are supposed to flow freely in the pipe can accumulate in the low points of the flare piping due to condensation of the vapor.*"⁹¹¹ GEOG described the risk of this defect as follows: "*This can lead to a slug of liquid being sent to the flare while vapor is being released and can potentially cause 'burning rain', excess back pressure, and possible large reaction forces in the header.*"⁹¹²

910. IEC concurred in the Statement of Claim that the pockets without slope or sufficient slope in the flare lines pose "*a serious safety issue*"⁹¹³ and "*a significant risk exists that liquid traveling to the flare will collect in the pipe and hammering of liquid (i.e., a rapid change in the momentum of the liquid due to a pressure wave) may occur.*"⁹¹⁴ Indeed, IEC's expert explained that "*continuously sloped piping to prevent accumulation of liquids in PRV discharge lines and flare headers are critical for safe operation of flare systems during process upset and emergency depressurization events*" and that "*[t]he purpose of these industry consensus specifications is to protect against dangerous phenomena such as 'burning rain,' liquid hammering, and back pressure build up in flare systems.*"⁹¹⁵

⁹⁰⁸ §X.B.3.a(3)(c)ii.

⁹⁰⁹ §X.B.2.d(3)(a).

⁹¹⁰ See SoC, ¶210.

⁹¹¹ SoCC, ¶155; see Exhibit RWS-2, ¶38.

⁹¹² SoCC, ¶155; see Exhibit RWS-2, ¶38.

⁹¹³ SoC, ¶186.

⁹¹⁴ SoC, ¶185.

⁹¹⁵ Exhibit CER-2, p. 13.

911. However, IEC asserted that the defect was not due to poor construction but to a defective engineering.⁹¹⁶

912. Indeed, as the Respondents' revisions to Claimants' draft minutes of meeting show, in the 12-13 February 2019 meeting in Rumuji IEC pointed out that "*GEOG's is in principle right [that the slope, as-built, does not conform to GEOG's design] but the problem is that the two fixed points to be interconnected make impossible to achieve the design slope, due to their position which cannot be changed.*"⁹¹⁷ And it added that "*GEOG must study the case with this new input from IEC and revert a suitable solution.*"⁹¹⁸ GEOG's position in the meeting is reflected as follows in the minutes of meeting:

[...] *GEOG must study the case with this new input from IEC and revert a suitable solution*

▪ *There are pockets (zero-slope traits) in the flare header and piping between PRVs and flare header that must be eliminated. GEOG to review and provide solution.*"⁹¹⁹

913. In the Statement of Defense, GEOG no longer insisted that the insufficient slope was due to poor construction by IEC but it now claimed that "*although it is true that the slope of some segments of the flare system do not comply with the design standard, this does 'not require remedial work' and IEC could have accepted the solution proposed by GEOG.*"⁹²⁰ GEOG relied in this regard on its expert, Mr Borrowman, who confirmed that "*[t]here are segments of the flare system pipework which have a negative slope or no slope or a positive slope which is less than that recommended by the design standard API RP 521*"⁹²¹ but opined that "*[t]he segments of the vent headers and flare headers with no or inadequate slope will not cause sufficient liquid accumulation to cause damage, create excessive backpressure or 'burning rain'*"⁹²² and that "*the consequences are not significant and do not require remedial work.*"⁹²³

914. In the Respondents' First Post-Hearing Brief, GEOG maintained that "*[b]oth sides' experts do agree, however, that whatever issue may potentially have existed was fixed some time ago during the construction of the flare.*"⁹²⁴ However, the testimony of Dr. Caligiuri on which GEOG relies in this regard is not straightforward. While Dr. Caligiuri seemed to confirm the counsel's

916 SoC, ¶185.

917 Exhibit C-243, p. 14.

918 Exhibit C-243, p. 14.

919 Exhibit C-243, p. 14.

920 SoD, ¶63(iii).

921 Exhibit RER-11, ¶1.3.1.1.

922 Exhibit RER-11, ¶5.2.1.1.

923 Exhibit RER-11, ¶5.3.1.2.

924 Rs' PHB1, ¶121.

proposition that "there is no longer any problem with the flare system,"⁹²⁵ he then clarified "I don't think the issues in the vent lines have been -- have been addressed."⁹²⁶ Dr Caligiuri seemed to be making a distinction between the vent headers and the flare headers.⁹²⁷ When confirming that the "flare line" had been fixed, Dr Caligiuri might have meant the high temperature flare header which was determined to be correctly sloped.⁹²⁸ Still, Dr Caligiuri's testimony is confusing in this instance considering that he himself had pointed out, in his reply report, that "Mr. Borrowman concedes there are several sections of the [...] low temperature (LT) flare header with 'negative' or 'inadequate' slopes."⁹²⁹ In any event, this bit of unclear oral testimony given at the Hearing does not cast doubt on the fact, asserted by both GEOG and IEC and confirmed by both experts in their expert reports, that the flare system pipework, as constructed, has segments with a negative slope or no slope or a positive slope which is less than recommended.

915. In recapitulation, GEOG shifted from asserting that the flare line, as built, had an insufficient slope, which posed a serious safety risk, to claiming, first, that the insufficient slope posed no serious risk and required no remedial work, and finally, that the insufficient slope had actually been fixed long ago. This extraordinary sequence renders GEOG's allegations on this issue rather unconvincing.
916. The Arbitral Tribunal finds that the insufficient slope was the result of a deficiency in GEOG's engineering, and that such defect materially affected the safe operation of the Trains, thus preventing Mechanical Completion.

(e) PRVs

917. It seems undisputed that the problem with the PRVs with back-pressure issues was present in early 2009.⁹³⁰ Thus, if this problem were not to be considered a minor item which does not materially affect the operation or safety of the Trains, it would prevent Mechanical Completion.
918. According to GEOG, the back flow preventers missing from the PRVs do "not affect the functionality of the valve during operation."⁹³¹
919. As already explained by the Arbitral Tribunal in Procedural Order No. 5, deciding on the Claimants' request for interim measures:

⁹²⁵ Tr. Day 7, 257:3-23.

⁹²⁶ Tr. Day 7, 258:9-10; see Exhibit RER-11, §4.7.1.

⁹²⁷ See, in this regard, Exhibit CER-8, ¶6.2.2 and Exhibit RER-11, ¶4.1.1.4, Figure 1.

⁹²⁸ See Exhibit CER-8, ¶6.2.25 and Exhibit RER-11, §4.7.2.

⁹²⁹ Exhibit CER-8, ¶6.2.25, in reference to Exhibit RER-11, §4.7.3

⁹³⁰ See Exhibits C-243, p. 14, item no. 14; C-186, pp. 5-6; SoC, ¶¶256; SoR, ¶¶190-191; Attachment to the Respondents' answer of 21 August 2019 to the Claimants application for interim relief, p. 3.

⁹³¹ Attachment to the Respondents' answer of 21 August 2019 to the Claimants application for interim relief, p. 3.

*"The Arbitral Tribunal notes that the Claimants did not address or refute the Respondents' statement that the missing Back Flow Preventers do not affect the functionality of the PRVs. Their statements that the PRVs are 'essential safety devices' is not at odds with the Respondents' contention that the missing Back Flow Preventers do not affect the PRV's functionality. Neither does the Exponent Expert Report, quoted by the Claimants, contradict the Respondents' position. In fact, the Exponent Report seems to refer to a different issue (that multiple PRVs were not adequately calibrated due to inactivity resulting from delays), 'full remediation of [which had] occurred on August 31, 2018.'*⁹³²

920. Neither in its subsequent briefs⁹³³ did IEC address or refute GEOG's statement that the missing back flow preventers do not affect the functionality of the PRVs but are merely used during maintenance. IEC's experts did not address this issue either.
921. The only evidence that the Arbitral Tribunal has seen that could potentially call into question GEOG's statement that the back flow preventers are only needed for maintenance is the following statement to be found in the minutes of the meeting of 19 March 2019: "*The PRV back flow preventer is an accessory that will be added to the existing installed PRV valves to avoid any back flow through the valve **during start up** or/and maintenance.*"⁹³⁴
922. However, in the absence of further explanations and, in particular, expert evidence, on this issue, the Arbitral Tribunal finds that IEC has not met its burden of proof that the back flow preventer issue materially affected the operation or safety of the Trains and thus prevented Mechanical Completion.

(f) Conclusion

923. The Arbitral Tribunal concludes that each of the four outstanding issues (MRC Cables, defective piping, VFD and flare design), by itself, impedes achievement of Mechanical Completion of the Trains, as none can be considered a minor item which does not materially affect the operation or safety of the Trains.
924. Since each of these issues remained outstanding in May 2018, the Arbitral Tribunal finds that Mechanical Completion of neither Train had occurred by May 2018.

⁹³² Procedural Order No. 5, ¶59.

⁹³³ See SoR, ¶¶190-191.

⁹³⁴ Exhibit R-249, p. 2, item no. 1.7, emphasis added.

(2) Whether Mechanical Completion is to be deemed achieved

925. The Arbitral Tribunal also rejects GEOG's argument that the Mechanical Completion is to be deemed achieved five months after the Delivery Date because GEOG was prevented from Mechanical Completion due to reasons beyond its control.⁹³⁵ As analyzed below, none of the reasons invoked by GEOG prevented GEOG from Mechanical Completion.

(a) IEC's cannibalization

926. The first reason alleged by GEOG is IEC "altering and removing parts and systems that had been certified as complete by IEC for use on IEC's Train 3, thereby destroying the traceability of materials and workmanship and undermining GEOG's ability to achieve a Mechanical Completion certificate."⁹³⁶

927. The Arbitral Tribunal has already determined that the alleged cannibalization does not have the weight GEOG attributes to it but it gives credence, in general terms, to IEC's explanations that only minor commodity-type items were shifted from Train 2 to Train 3 and that replacement were soon reinstalled in Train 2.⁹³⁷

928. More importantly, GEOG has failed to explain how the removal of which part or system caused, contributed to or disrupted the solution of, any of the four central issues identified above to having prevented Mechanical Completion.

(b) IEC's preservation of materials

929. GEOG asserts that IEC "fail[ed] to preserve materials following delivery to site, including but not limited to a failure to properly store, install and maintain the Trains."⁹³⁸

930. Even assuming that IEC' preservation of materials was inadequate, GEOG has failed to show how this might have significantly impacted the timing of rectification of the four central issues identified above to having prevented Mechanical Completion.

(c) IEC's position on the issues of MRC cables and VFD

931. GEOG argues that IEC "refusing to acknowledge that the provision of MRC cables and VFD is not within GEOG's scope of supply under the Equipment Contract" prevented GEOG from achieving Mechanical Completion.⁹³⁹

⁹³⁵ SoD, ¶¶220-222; Rs' PHB1, ¶25.

⁹³⁶ SoD, ¶220(i).

⁹³⁷ ¶656.

⁹³⁸ SoD, ¶220(ii).

⁹³⁹ SoD, ¶220(iii).

932. It is unfathomable to the Arbitral Tribunal how IEC holding a position as regards these issues could have the potential to prevent GEOG from achieving Mechanical Completion.

(d) IEC preventing rectification of piping supports

933. GEOG's argument that Mechanical Completion is to be deemed achieved due to IEC's lack of cooperation with the rectification of the piping supports fails because, as explained above,⁹⁴⁰ the Arbitral Tribunal considers IEC's explanations as to why it held back with authorizing GEOG to perform the remediation works to be reasonable.

934. Further, GEOG has not made a specific allegation regarding the date on which, if IEC had cooperated, it would have finished rectifying the piping supports and thus, Mechanical Completion should be deemed to have occurred.

935. But even assuming that, if IEC had cooperated, GEOG would have rectified the piping supports at some point during 2019, this does not do away with the other three defects which negate Mechanical Completion.

(e) Inputs for flare network design review

936. GEOG's last objection is that IEC "refus[ed] to provide the needed inputs associated with the BOPs out of GEOG scope of supply to complete the flare network design review."⁹⁴¹

937. However, this issue is unrelated to the flare design issue (insufficient slope) or to any of the other three issues determined to have prevented Mechanical Completion.

(3) Whether IEC failed to act reasonably and fairly

938. GEOG argues that "IEC's refusal to acknowledge and compensate GEOG for Mechanical Completion of Train 1 and 2 is a breach of IEC's obligation under Clause 1.7 of the Equipment Contract to act reasonably and fairly."⁹⁴² It is not entirely clear which consequence should be drawn from the foregoing, in GEOG's opinion. In any event, the Arbitral Tribunal is not persuaded by the argument given that IEC's stance was not only reasonable and fair but it was also correct, as concluded above.

(4) Whether Mechanical Completion was achieved in early 2020

939. However, the Arbitral Tribunal does find that Mechanical Completion was indeed achieved subsequently. In this regard, IEC has submitted that "[t]he mechanical aspects of the necessary

⁹⁴⁰ ¶¶675-677.

⁹⁴¹ SoD, ¶220(v).

⁹⁴² SoD, ¶224.

*'make-good' elements (i.e., installation of the VFD, switching the incorrect cables, remediating the stress defects) were completed by Claimants on Train 1 in early 2020, and with a few minor exceptions, have also been completed on Train 2*⁹⁴³ but that testing, commissioning and start-up of the Trains is still outstanding due to the restrictions caused by the COVID-19 pandemic.⁹⁴⁴

940. Given that, in "early 2020" at the latest, the installation of both Trains was complete, with the exception only of minor items, both Trains are mechanically complete, as per the above contractual definition, at least since that moment. Given that IEC has not provided a more specific date in reply to the Arbitral Tribunal's question in Procedural Order No. 10, the Arbitral Tribunal deems Mechanical Completion of both Trains to have been reached on 1 January 2020.

941. Even though the Arbitral Tribunal may have sympathy with IEC's frustration with GEOG's attitude and behavior, it is not persuaded by IEC's arguments that it defies common sense for GEOG to *"claim millions of dollars in payment for milestones it concedes Claimants (as opposed to itself) are achieving"*⁹⁴⁵ and that "*Clause 7.1 states that BHGE is only entitled to the Contract Price 'in consideration for the performance by [BHGE] of all its obligations under the Agreement.'*"⁹⁴⁶ The Arbitral Tribunal considers that the payment due for this Milestone is akin to a 10% installment of the purchase price, i.e., it is consideration for 10% of the value of each of the Trains sold and delivered. In contrast, the payment does not serve the purpose of remunerating or crediting GEOG or GE Nigeria for any contribution regarding the installation and connection works conducive to Mechanical Completion:

(i) As explained above,⁹⁴⁷ GEOG's primary obligation under the Equipment Contract is fulfilled with delivery of Trains 1 and 2, which occurred on 28 March 2016. The subsequent installation and connection works to be performed in order to reach Mechanical Completion are in IEC's scope. It is true that defects/non-conformities of the Trains delivered by GEOG have the potential to adversely affect the pace and success of IEC's works towards Mechanical Completion. And IEC is entitled to withhold payment for this Milestone for as long as Mechanical Completion is not reached due to reasons within GEOG's control (Clause 7.6⁹⁴⁸ in conjunction with the definition of Mechanical Completion in Clause 1 of the Equipment Contract). This withholding right may well be meant to serve as an incentive for GEOG to swiftly remediate any defects/non-conformities that may stand in the way of

⁹⁴³ Claimants' Response to Procedural Order No. 10, of 30 July 2020, p. 2.

⁹⁴⁴ Claimants' Response to Procedural Order No. 10, of 30 July 2020, p. 2.

⁹⁴⁵ Cs' PHB2, ¶¶145-146.

⁹⁴⁶ Cs' PHB2, ¶146.

⁹⁴⁷ ¶436.

⁹⁴⁸ "Buyer may withhold payment on an invoice or a portion thereof in the event of a failure of Seller to perform the Milestone related to the withheld payment in accordance with the provisions of this Agreement."

Mechanical Completion. However, this does not mean that the milestone payment for Mechanical Completion constitutes *consideration* for a possible contribution by GEOG towards Mechanical Completion. Therefore, the fact that GEOG may not have contributed to Mechanical Completion or that its failure to remediate defects/non-conformities may have been disruptive to IEC's works towards Mechanical Completion does not cancel GEOG's right to eventually receive full payment for the Trains sold and delivered. Of course, the Equipment Contracts makes other remedies available to IEC to specifically address GEOG's failure to remediate defects/non-conformities, namely those in Clause 17.4 of the Equipment Contract, as discussed above.⁹⁴⁹

- (ii) GE Nigeria is indeed involved in the works towards Mechanical Completion pursuant to the Services Agreement. However, GE Nigeria's performance in this regard cannot have any bearing on GEOG's entitlement to payment under the Equipment Contract. As the Equipment Contract makes clear, the Services Agreement is a "separate" contract.⁹⁵⁰ It is true that both Contracts are linked to a certain extent by their respective Clauses 20.2 and also by the Guarantee. However, neither Clause 1 of the Guarantee (in which GEOG guarantees to IEC the performance of GE Nigeria's obligations under the Services Agreement) nor Clauses 20.2(c) of the Contracts (which stipulate that GEOG and GE Nigeria shall not assert each other's performance or non-performance under the other contract as a defense to any claim by IEC) can serve as a basis to bar GEOG's entitlement to payment of the Contract Price by reason of GE Nigeria's performance under the Services Agreement.

942. In conclusion, the Arbitral Tribunal finds that Mechanical Completion for both Trains was reached by 1 January 2020. Given that GEOG is requesting payment for this Milestone in this arbitration, the Arbitral Tribunal considers that the additional issuance of an invoice⁹⁵¹ is dispensable in order for the payment obligation to be triggered pursuant to Clause 7.1 of the Equipment Contract.

943. Thus, payment of USD 9,500,000 for the Mechanical Completion Milestone of both Trains is due since 31 January 2020.

d. Taking Over of Trains 1 and 2

944. Clause 1 of the Equipment Contract defines "Taking Over" as follows:

⁹⁴⁹ ¶¶592(iii), 788(ii).

⁹⁵⁰ Equipment Contract, Clause 1, Definitions of "Services," "Services Agreement" and "Services Provider."

⁹⁵¹ Those issued on 16 September 2016 (Exhibit R-185) and on 13 June 2018 (Proforma Invoice, Exhibit R-81, p. 3) were premature.

"'Taking Over' means the point in time when the conditions set out in Clause 26.1 have been fulfilled, as evidenced by the Taking Over Certificate. In the event Seller is prevented from meeting the conditions set out in Clause 26.1 due to reasons beyond Seller's control, Taking Over shall mean eight (8) months after the Delivery Date."

945. The conditions set out in Clause 26.1 are the following:

"As soon as the following conditions are fulfilled in respect of a Plant, Buyer shall issue to Seller the Taking Over Certificate for such Plant:

- (i) Seller has complied with all its obligations under the Agreement, and in particular, the Plant has been delivered in accordance with the terms of this Agreement;*
- (ii) the Plant has been Commissioned (other than with respect to the items on the Punch List) and the Services have been performed in accordance with the Service Agreement; and,*
- (iii) the Acceptance Tests have been passed and Seller has issued all the Test Certificates, and the Plant has achieved all of the Guaranteed Performances, or the Liquidated Damages for failure to achieve the Guaranteed Performances are less than or equal to five percent (5%) of the Contract Price for each Plant, as per Clause 25."*

946. While the Trains have been delivered,⁹⁵² they have not been commissioned nor have the Acceptance Test been carried out.⁹⁵³

947. GEOG's argument that Taking Over is deemed to have occurred eight months after the Delivery Date because, as per the definition in Clause 1 of the Equipment Contract, GEOG was *"prevented from meeting the conditions set out in Clause 26.1 due to reasons beyond [its] control,"*⁹⁵⁴ is not convincing to the Arbitral Tribunal.

948. As explained above,⁹⁵⁵ so long as the above mentioned four major defects in the delivered Trains remained unsolved, Mechanical Completion could not occur. Therefore, GEOG was responsible for at least some of the obstacles to reaching Mechanical Completion. Thus, GEOG was not prevented from Mechanical Completion due to reasons beyond its control. *A fortiori*, until Mechanical Completion occurred on 1 January 2020, GEOG was not prevented from meeting the conditions for Taking Over set out in Clause 26.1 due to reasons beyond its control.

⁹⁵² See above, ¶436.

⁹⁵³ As explained by the Claimants, *"the work to test, commission and start-up the Trains"* has not been concluded (Claimants' Response to Procedural Order No. 10, of 30 July 2020, p. 2).

⁹⁵⁴ SoD, ¶220.

⁹⁵⁵ ¶923.

949. GEOG has alleged only one circumstance which, it argues, was beyond its control and prevented it from meeting the Taking-Over conditions after 1 January 2020, namely that “*the gas available at the Rumuji Plant is substantially different from the one specified in the Equipment Contract*” which, so argues GEOG, “*will prevent the Trains from reaching the Guaranteed Performances.*”⁹⁵⁶

950. The Arbitral Tribunal finds this argument unconvincing. Under Clause 4.1.2 of Appendix A,⁹⁵⁷ the initiative to commence Acceptance Testing is GEOG’s who, once the Train attains stable operation, is to issue a Test Certificate to IEC that the Train is ready for Acceptance Tests. Pursuant to the same Clause 4.1.2 of Appendix A, if 48 hours after issuance of such certificate “*the Acceptance Tests cannot be completed due to gas supply, power supply or factors outside Seller’s control then the Plant will be considered provisionally accepted,*” i.e. Taking Over is deemed to have occurred. Thus, the Equipment Contract contemplates problems with the gas supply, but such problems can only result in Taking Over being deemed to have occurred if they are extant at the moment scheduled for commencement of the Acceptance Testing (following issuance by IEC of the Test Certificate that the Train is ready for Acceptance Tests). GEOG’s prediction that the gas will be non-conforming is speculative and premature, especially considering that it is GEOG’s own contention that “*We still do not know the gas composition that is being fed to Train 3 (and which will eventually be fed to Trains 1 and 2 if and when they are put into operation)*”⁹⁵⁸ and that without knowing the final gas composition the Trains’ performance “*is only a matter of speculation.*”⁹⁵⁹

951. In conclusion, the Arbitral Tribunal finds that Taking Over has not occurred nor is it deemed to have occurred. Thus, the Arbitral Tribunal dismisses GEOG’s claim for payment of USD 9,500,000 for this Milestone for both Trains.

B. Services Agreement Price

1. GE Nigeria’s position

952. In the Statement of Defense, GE Nigeria states:

⁹⁵⁶ Rs’ PHB1, ¶27.

⁹⁵⁷ “4.1.2 Start-Up Tests
Stable Operation

The Plant is to attain stable operation before testing commences. Seller will issue a Test Certificate to Buyer that the Plant is ready for Acceptance Tests. Acceptance Testing will commence within forty-eight (48) hours of certificate issuance, and will be conducted in accordance with the Services Agreement. In the event the Acceptance Tests cannot be completed due to gas supply, power supply or factors outside Seller’s control then the Plant will be considered provisionally accepted.

The Acceptance Tests will be rescheduled at a mutually agreeable time, at Buyer’s expense.”

⁹⁵⁸ Rs’ PHB2, ¶7.

⁹⁵⁹ Rs’ PHB2, ¶89.

"Clause 7.1 of the Services Contract provides that GE Nigeria may invoice for the hours performed before the following key events: (i) Mechanical Completion of the Trains, (ii) conclusion of Commissioning, (iii) conclusion of Acceptance Tests, (iv) at Taking Over and (v) sixty days after Taking Over. The contractual definition of Taking Over is similar to that of the Equipment Contract in that it provides that: '...In the event [GE Nigeria] is prevented from meeting the conditions set out in Clause 15.1 due to reasons beyond [GE Nigeria]'s control, Taking Over shall mean six (6) months after the Commencement Date.' "⁹⁶⁰

953. GE Nigeria submits that it has "exhausted the hours provided for in the lump sum payment under the Services Contract in April 2017"⁹⁶¹ and "[a]s the Taking Over Milestone of the Equipment Contract has been achieved, the entire lump sum amount of \$1,000,000 is due under the Services Contract."⁹⁶²

2. IEC's position

954. In the Statement of Reply, IEC has argued that GE Nigeria's claim for payment of the price under the Services Agreement fails for the same reasons as GEOG's claim for payment of the price under the Equipment Contract for the milestone of Mechanical Completion of Train 1:⁹⁶³

"These fail for the same reasons as with Train 1. It is entirely within GE/BHGE's control to cure the outstanding defects in order to achieve Mechanical Completion and subsequent Taking Over of Trains 1 and 2. Instead of doing so, however, GE/BHGE unjustifiably decided to abandon the Rumuji site."⁹⁶⁴

3. Arbitral Tribunal's analysis

955. This claim refers to the portion of the Services Contract Price for the Base Employees, which is a lump sum of USD 500,000 per Train in accordance with Clause 7.1(i) of the Services Agreements.

956. Clause 7.2 of the Services Agreement provides as follows:

"7.2 Services Provider shall be entitled to invoice for the cumulative Worked Hours performed before each of the following key events on a per Plant basis:

(i) conclusion of Mechanical Completion of the Plant;

⁹⁶⁰ SoD, ¶230.

⁹⁶¹ SoD, ¶229.

⁹⁶² SoD, ¶231; see also Rs' PHB1, ¶28.

⁹⁶³ SoR, ¶¶563-564.

⁹⁶⁴ SoR., ¶564.

- (ii) conclusion of Commissioning;
- (iii) conclusion of Acceptance Tests;
- (iv) at Taking Over; and,
- (v) sixty (60) Days after Taking Over;

it being understood that in respect of the portion of the Services Contract Price for the Base Employees, Services Provider shall be entitled to invoice twenty percent (20%) of such portion of the Services Contract Price for the Base Employees when each of the above mentioned milestones is reached.”

957. As explained above,⁹⁶⁵ the Arbitral Tribunal considers that Mechanical Completion of both Trains was attained on 1 January 2020. Thus, GEOG Nigeria is entitled to 20% of the Services Contract Price for the Base Employees, i.e. USD 200,000 for both Trains.

958. However, none of the subsequent milestones has been reached thus far⁹⁶⁶ nor, for that matter, has GE Nigeria performed any on-site services in any phase subsequent to Mechanical Completion. Consequently, the part of this claim corresponding to those four subsequent four milestones (USD 800,000, in total) is dismissed.

C. Additional works

1. Counterclaimants' position

959. In the Statement of Counterclaim, the Counterclaimants make claims for additional works under the Contracts:

(i) GEOG claims for additional works under the Equipment Contract an amount of USD 9,905,408.62.⁹⁶⁷ It submits that “[a]lthough GEOG performed a significant amount of work outside of its Scope of Supply, IEC refused to execute or even entertain change orders to increase the contract price.”⁹⁶⁸ And it explains:

“Relying on a good faith ‘commercial discussion’ with IEC at the end of the project, GEOG continued to implement changes to the contractual scope of works at its own cost, carrying out activities and procuring equipment to complete the Rumuji Plant, even though it was not obliged to do so under the Equipment Contract.”⁹⁶⁹

⁹⁶⁵ §XI.A.3.c(4).

⁹⁶⁶ See above, ¶946.

⁹⁶⁷ SoCC, ¶168.

⁹⁶⁸ SoCC, ¶163.

⁹⁶⁹ SoCC, ¶56.

(ii) GE Nigeria claims for additional services under the Services Agreement an amount of USD 5,511,076.68.⁹⁷⁰ It submits that “[a]t the meeting in Florence on November 9, 2016, it was agreed between the Parties that the GEOG Entities would perform additional works in the interest of completing all aspects (not only their scope of work) of the Rumuji Plant, and that the Parties would then have a commercial discussion as to whether the additional works were ‘works under the Services Agreements’.”⁹⁷¹ GE Nigeria follows that, “it has always been clear that any works that fell outside of the Services Contract were extra work subject to additional compensation from IEC.”⁹⁷² Thus, GE Nigeria claims “compensation for these Additional Employees provided pursuant to and at the rates set forth in Clauses 5.2(ii) and Clause 7.5 of the Services Contract, in accordance with Clauses 2 and 25 of the Services Contract.”⁹⁷³ It also submits that “IEC’s refusal to approve payment for the extra works it requested is a breach of Clause 1.7 of the Services Contract.”⁹⁷⁴

GE Nigeria further explains that it has excluded from its claims for additional work under the Services Agreements any hours spent carrying out works pertaining to GEOG’s scope of supply under the Equipment Contract.⁹⁷⁵

960. In the Statement of Counterclaim, GEOG submits the following claims for additional works under the Equipment Contract:⁹⁷⁶

- (i) Interconnecting pipework: USD 3,904,761.50.⁹⁷⁷
- (ii) Bolt changes: USD 687,621.52.⁹⁷⁸
- (iii) Gas composition changes: USD 773,800.00.⁹⁷⁹
- (iv) Load out philosophy: USD 495,000.00.⁹⁸⁰
- (v) Power generation: USD 255,500.00.⁹⁸¹
- (vi) IEC delay with technical information: USD 329,000.00.⁹⁸²

⁹⁷⁰ SoCC, ¶196.

⁹⁷¹ SoCC, ¶¶164.

⁹⁷² SoCC, ¶¶164.

⁹⁷³ SoCC, ¶¶196-200.

⁹⁷⁴ SoCC, ¶¶196-200.

⁹⁷⁵ SoCC, ¶¶198-199.

⁹⁷⁶ SoCC, ¶169.

⁹⁷⁷ SoCC, ¶¶171-174, with reference to Exhibit RER-7, Section 5.4.

⁹⁷⁸ SoCC, ¶¶175-177, with reference to Exhibit RER-7, Section 5.5.

⁹⁷⁹ SoCC, ¶¶178-179, with reference to Exhibit RER-7, Section 5.6.

⁹⁸⁰ SoCC, ¶¶180-181, with reference to Exhibit RER-7, Section 5.7.

⁹⁸¹ SoCC, ¶¶182-183, with reference to Exhibit RER-7, Section 5.8.

⁹⁸² SoCC, ¶¶184-185, with reference to Exhibit RER-7, Section 5.9.

(vii) IEC requests for alternative designs: USD 178,500.00.⁹⁸³

(viii) Vent / flare systems: USD 234,500.00.⁹⁸⁴

(ix) BOG compressor inlet: USD 229,557.60.⁹⁸⁵

(x) LNG train control system spares: USD 421,280.00.⁹⁸⁶

(xi) Prolongation: USD 420,000.00.⁹⁸⁷

(xii) Acceleration / thickening: USD 250,000.00.⁹⁸⁸

(xiii) Disruption: TBA.⁹⁸⁹

(xiv) Delayed invoice and payment: USD 374,500.00.⁹⁹⁰

(xv) IEC delays to change order request approval: USD 1,280,000.00.⁹⁹¹

(xvi) Escalation of manhour rates: USD 71,388.00.⁹⁹²

961. And GE Nigeria submits the following claims for additional works under the Services Agreement:

(i) Additional support services: USD 11,030,420.00.⁹⁹³

(ii) Additional 3rd party support services at site: USD 773,286.00.⁹⁹⁴

(iii) 3rd party strikes at site: USD 217,500.00.⁹⁹⁵

(iv) 3rd party vendor support: USD 1,289,250.40.⁹⁹⁶

(v) Care and custody audit and rectification activities: USD 310,258.11.⁹⁹⁷

(vi) Defective materials management: USD 258,231.77.⁹⁹⁸

(vii) Accommodation and transportation: USD 157,468.00.⁹⁹⁹

983 SoCC, ¶¶186-187, with reference to Exhibit RER-7, Section 5.10.

984 SoCC, ¶¶188-189, with reference to Exhibit RER-7, Section 5.11.

985 SoCC, ¶¶190-191, with reference to Exhibit RER-7, Section 5.12.

986 SoCC, ¶¶192-193, with reference to Exhibit RER-7, Section 5.13.

987 SoCC, ¶¶194-195, with reference to Exhibit RER-7, Section 5.15.

988 SoCC, ¶¶194-195, with reference to Exhibit RER-7, Section 5.16.

989 SoCC, ¶¶194-195, with reference to Exhibit RER-7, Section 5.17.

990 SoCC, ¶¶194-195, with reference to Exhibit RER-7, Section 5.18.

991 SoCC, ¶¶194-195, with reference to Exhibit RER-7, Section 5.19.

992 The SoCC also mentions a claim for escalation of manhour rates (see table at ¶168) but does not further develop it. Exhibit RER-7, Section 5.20, deals with this claim.

993 SoCC, ¶¶201-202, with reference to Exhibit RER-7, Section 6.4.

994 SoCC, ¶¶203-204, with reference to Exhibit RER-7, Section 6.5.

995 SoCC, ¶¶205-206, with reference to Exhibit RER-7, Section 6.6.

996 SoCC, ¶¶207-208, with reference to Exhibit RER-7, Section 6.7.

997 SoCC, ¶¶209-210, with reference to Exhibit RER-7, Section 6.8.

998 SoCC, ¶¶211-212, with reference to Exhibit RER-7, Section 6.9.

999 SoCC, ¶¶213-214, with reference to Exhibit RER-7, Section 6.10.

(viii) Site planner Eli/coordinated project schedule: USD 403,900.00.¹⁰⁰⁰

(ix) Compensation for extended performance on site: USD 1,070,762.40.¹⁰⁰¹

962. In the Statement of Defense, the Counterclaimants revise the amounts claimed for additional works under the Contracts.¹⁰⁰² The claim for compensation for extended period on site is reframed as a claim for interest¹⁰⁰³ and the thickening claim is withdrawn.¹⁰⁰⁴

963. The Counterclaimants explain that they “*have clearly separated the extra work that was carried out related to their scopes of work and the additional work they performed*”¹⁰⁰⁵ and they argue that it is “*unconscionable*” for IEC to rely on the Contracts’ change provisions “*having taken full and knowing advantage of the benefit of those additional works.*”¹⁰⁰⁶

964. They posit that they are entitled to the amounts claimed for additional works under the Contracts on the following grounds:

- (i) Primarily, they ground their claims on Clause 24 of the Equipment Contract and Clause 25 of the Services Agreement.¹⁰⁰⁷ They argue that compliance with the change provisions of the Contracts is not a condition precedent for claims for additional work¹⁰⁰⁸ and that “*the change provisions of the Contracts are ‘liberal’ rather than ‘strict’ notice provisions.*”¹⁰⁰⁹
- (ii) Moreover, they argue that by directing the GE Entities to perform work based on the representation that it would fairly compensate them for additional work IEC has waived and/or is estopped from relying on the contractual requirements for contractual changes.¹⁰¹⁰
- (iii) Further, they submit that they ought to be compensated because IEC was unjustly enriched at GEOG’s expense.¹⁰¹¹
- (iv) In the alternative, the Counterclaimants claim those sums as damages resulting from IEC’s breach of the obligation to act reasonably and fairly under Clauses 1.7 of both Contracts¹⁰¹²

¹⁰⁰⁰ SoCC, ¶¶215-216, with reference to Exhibit RER-7, Section 6.11.

¹⁰⁰¹ SoCC, ¶217, with reference to Exhibit RER-7, Section 6.12.

¹⁰⁰² SoD, ¶¶234-235.

¹⁰⁰³ Exhibit RER-16, ¶6.12.2.2.

¹⁰⁰⁴ Exhibit RER-16, ¶6.12.2.3.

¹⁰⁰⁵ SoD, ¶238.

¹⁰⁰⁶ SoD, ¶237.

¹⁰⁰⁷ See SoD, ¶255.

¹⁰⁰⁸ SoD, ¶¶240-254.

¹⁰⁰⁹ SoD, ¶244.

¹⁰¹⁰ SoD, ¶¶239, 250, 255-259.

¹⁰¹¹ SoD, ¶¶260-264.

¹⁰¹² “*Where reference is made in the [Contract] to a Party’s decision, approval, refusal, consent, agreement, act, etc., such shall not be taken, given or withheld unreasonably or unfairly, unless otherwise expressly stated.*”

and of the obligation to use reasonable efforts to agree upon the change order as soon as possible, under of Clause 24.2 of the Equipment Contract.¹⁰¹³ ¹⁰¹⁴

965. In the Respondents' First Post Hearing Brief, the Counterclaimants further revise the amounts of their claims for additional works under the Contracts,¹⁰¹⁵ and they provide further explanations on the interconnecting pipework,¹⁰¹⁶ bolt changes,¹⁰¹⁷ and the other additional works claimed under the Equipment Contract,¹⁰¹⁸ as well as under the Services Agreement.¹⁰¹⁹ The claim for third party vendor support is withdrawn.¹⁰²⁰

966. In the Respondents' Second Post Hearing Brief, the Counterclaimants withdraw the claim for additional works referred to the vent/flare system and update the amount of their prolongation costs claim.¹⁰²¹

967. The final total amount of the claims for additional works under the Equipment Contract is USD 6,637,011.10, which is broken down as follows:

- (i) Interconnecting pipework: USD 4,057,405.10.¹⁰²²
- (ii) Bolt changes: USD 508,867.¹⁰²³
- (iii) Gas composition changes: USD 884,100.¹⁰²⁴
- (iv) Load out philosophy: USD 495,000.¹⁰²⁵
- (v) Power generation: USD 255,500.¹⁰²⁶
- (vi) IEC delay with technical information: USD 164,500.¹⁰²⁷
- (vii) IEC requests for alternative designs: USD 178,500.¹⁰²⁸
- (viii) Prolongation costs: USD 33,139.¹⁰²⁹

¹⁰¹³ "Buyer and Seller shall each use reasonable efforts to agree upon the Proposal For Change Order as soon as possible."

¹⁰¹⁴ SoD, ¶¶265-269.

¹⁰¹⁵ Rs' PHB1, ¶¶30, 38, 43, 46.

¹⁰¹⁶ Rs' PHB1, ¶¶31-34.

¹⁰¹⁷ Rs' PHB1, ¶¶35-37.

¹⁰¹⁸ Rs' PHB1, ¶¶38-45.

¹⁰¹⁹ Rs' PHB1, ¶¶47-53.

¹⁰²⁰ It is no longer part of the table at Rs' PHB1, ¶46; see Mr Hillier's presentation "Overview of my Independent Expert Opinion on Project Execution and Quantum Matters," used at the Hearing on 19 December 2019, p. 38.

¹⁰²¹ Rs' PHB2, ¶108.

¹⁰²² Rs' PHB2, ¶111.

¹⁰²³ Rs' PHB2, ¶116.

¹⁰²⁴ Rs' PHB2, ¶122.

¹⁰²⁵ Rs' PHB2, ¶125.

¹⁰²⁶ Rs' PHB2, ¶128.

¹⁰²⁷ Rs' PHB2, ¶132.

¹⁰²⁸ Rs' PHB1, ¶38, Table 4.

¹⁰²⁹ Rs' PHB2, ¶136.

(ix) Escalation of manhour rates: USD 60,000.¹⁰³⁰

968. The final total amount of the claims for additional works under the Services Agreement remains unchanged with respect to the Respondents' First Post-Hearing Brief, at USD 11,475,565.88, which is broken down as follows:¹⁰³¹

- (i) Additional support services: USD 9,415,672.
- (ii) Additional 3rd party support services at site: USD 773,286.
- (iii) 3rd party strikes at site: USD 156,750.
- (iv) Care and custody audit and rectification activities: USD 310,258.11.
- (v) Defective materials management: USD 258,231.77.
- (vi) Accommodation and transportation: USD 157,468.
- (vii) Coordination and project schedule: USD 403,900.

2. IEC's position

969. In the Statement of Claim, IEC submits that “[t]he Contracts include very specific provisions governing change requests” and that “GE’s failure to present requests for change orders for much of its alleged additional performance precludes it from pursuing such alleged claims now.” IEC adds that “Claimants’ refusal of requests that were made equally preclude GE from nonetheless unilaterally deciding to implement them and be paid.”¹⁰³²

970. In addition to the general argument that the contractual change-order requirements were not complied with, IEC makes further submissions in opposition to each of GEOG’s claims for additional works under the Equipment Contract (for interconnecting pipework,¹⁰³³ for bolt changes,¹⁰³⁴ gas composition,¹⁰³⁵ load out philosophy,¹⁰³⁶ power generation,¹⁰³⁷ IEC’s delay with technical information,¹⁰³⁸ IEC’s requests for alternative designs,¹⁰³⁹ vent/flare systems,¹⁰⁴⁰

¹⁰³⁰ Rs' PHB1, ¶38, Table 4.

¹⁰³¹ Rs' PHB2, ¶137; Rs' PHB1, ¶¶46.

¹⁰³² SoC, ¶421; see also SoC, ¶¶421-426; Cs' PHB1, ¶¶201-204.

¹⁰³³ SoC, ¶¶432-438.

¹⁰³⁴ SoC, ¶¶439-444.

¹⁰³⁵ SoC, ¶¶445-448.

¹⁰³⁶ SoC, ¶¶449-452.

¹⁰³⁷ SoC, ¶¶453-455.

¹⁰³⁸ SoC, ¶¶456-458.

¹⁰³⁹ SoC, ¶¶459-460.

¹⁰⁴⁰ SoC, ¶¶461-462.

BOG compressor inlet,¹⁰⁴¹ LNG train control system spares¹⁰⁴² and additional costs related to extension of time, prolongation, acceleration and disruption¹⁰⁴³).

971. Likewise, IEC makes submissions in opposition to each of GE Nigeria's claims for additional works under the Services Agreement (for additional support services at site,¹⁰⁴⁴ additional third party support services at site,¹⁰⁴⁵ third party strikes at site,¹⁰⁴⁶ third party vendor support,¹⁰⁴⁷ care and custody audit and rectification activities and defective material management,¹⁰⁴⁸ accommodation and transportation,¹⁰⁴⁹ coordinated project schedule¹⁰⁵⁰ and compensation for extended period on site¹⁰⁵¹).
972. In the Statement of Reply, IEC addresses GEOG's argument that IEC has waived reliance on the contractual change order requirements as follows:

"But the problem for GE/BHGE is two-fold. First, the Equipment Contract and the Services Contract both contain express provisions prohibiting oral waivers. Second, Claimants made it clear from the very beginning of the project that compliance with the Change Order provisions would be strictly enforced.

[...]

Respondents also conclusorily contend that Claimants requested or directed all of the additional work that Respondents now claim they carried out. And that Claimants promised to subsequently have commercial discussions concerning payment. Neither of those contentions is true.

The very nature of GE/BHGE's counterclaims demonstrate that Claimants never made any such requests or gave any such directions. For example, the majority of Respondents' counterclaims are based on allegations that Claimants failed in their obligations, thereby requiring Respondents to incur additional costs. Because Respondents do not, and cannot, point to any express request from Claimants to carry out the alleged additional work, they have no claim for change orders.

1041 SoC, ¶¶463-464.

1042 SoC, ¶¶465-466.

1043 SoC, ¶¶467-469.

1044 SoC, ¶¶471-473.

1045 SoC, ¶¶474-479.

1046 SoC, ¶¶480-483.

1047 SoC, ¶¶484-489.

1048 SoC, ¶¶490-493.

1049 SoC, ¶¶494-496.

1050 SoC, ¶¶497-498.

1051 SoC, ¶¶499.

Similarly, Claimants never requested additional work and then promised to have 'commercial discussions' at a later date. The meeting minutes and summaries that Respondents rely upon do not support their assertion.”¹⁰⁵²

973. As to GEOG's unjust-enrichment argument, IEC replies the following:

“Respondents' unjust enrichment theory fails for the independent reason that, as they themselves acknowledge, '[t]he existence of a valid and enforceable written contract governing a particular subject matter ordinarily precludes recovery in quasicontract for events arising out of the same subject matter.’

Respondents' attempt to evade this prohibition by asserting that it does not apply where the alleged work was never the subject of the parties' agreement, fails where, as here, 'there exists a contract governing how payment for extra work will be determined.' ”¹⁰⁵³

974. In addition to the general discussion on the contractual change-order requirements, waiver and unjust enrichment, IEC makes further submissions in opposition to each of GEOG's claims for additional works under the Equipment Contract (for interconnecting pipework,¹⁰⁵⁴ for bolt changes,¹⁰⁵⁵ gas composition,¹⁰⁵⁶ load out philosophy,¹⁰⁵⁷ power generation,¹⁰⁵⁸ IEC's delay with technical information,¹⁰⁵⁹ IEC's requests for alternative designs,¹⁰⁶⁰ vent/flare systems,¹⁰⁶¹ BOG compressor inlet,¹⁰⁶² LNG train control system spares,¹⁰⁶³ additional costs related to extension of time, prolongation, acceleration and disruption,¹⁰⁶⁴ delayed payment and delays in change order approval and payment¹⁰⁶⁵ and rates escalation¹⁰⁶⁶).

975. Likewise, IEC makes submissions in opposition to each of GE Nigeria's claims for additional works under the Services Agreement (for additional support services at site,¹⁰⁶⁷ additional third party support services at site,¹⁰⁶⁸ third party strikes at site,¹⁰⁶⁹ third party vendor support,¹⁰⁷⁰ care

1052 SoR, ¶¶571-575.

1053 SoR, ¶¶578-579.

1054 SoR, ¶¶586-589.

1055 SoR, ¶¶590-592.

1056 SoR, ¶¶593-603.

1057 SoR, ¶¶604.

1058 SoR, ¶¶605.

1059 SoR, ¶¶606-615.

1060 SoR, ¶¶616-622.

1061 SoR, ¶¶623-626.

1062 SoR, ¶¶627-632.

1063 SoR, ¶¶633-640.

1064 SoR, ¶¶641-650.

1065 SoR, ¶¶651.

1066 SoR, ¶¶652-564.

1067 SoR, ¶¶655-659.

1068 SoR, ¶¶660-663.

1069 SoR, ¶¶664-668.

1070 SoR, ¶¶669-672.

and custody audit and rectification activities and defective material management,¹⁰⁷¹ accommodation and transportation,¹⁰⁷² coordinated project schedule¹⁰⁷³ and compensation for extended period on site¹⁰⁷⁴).

976. In the Claimant's First Post-Hearing Brief, IEC makes further submissions in opposition to some of GEOG's claims for additional works under the Equipment Contract (for interconnecting pipework,¹⁰⁷⁵ for bolt changes,¹⁰⁷⁶ gas composition,¹⁰⁷⁷ IEC's delay with technical information,¹⁰⁷⁸ vent/flare systems,¹⁰⁷⁹ prolongation¹⁰⁸⁰).
977. Likewise, IEC makes submissions in opposition to some of GE Nigeria's claims for additional works under the Services Agreement (for additional support services at site,¹⁰⁸¹ additional third party support services at site¹⁰⁸² and third party vendor support¹⁰⁸³).

3. Arbitral Tribunal's analysis

a. Claims for prolongation and escalation of manhour rates

978. GEOG lists its claims for prolongation and escalation of manhour rates among its claims for "*additional work required by IEC*."¹⁰⁸⁴ However, it also explains that these are costs associated with the sought extension of time.¹⁰⁸⁵
979. While GEOG does not explicitly state the contractual basis of its claims for prolongation and escalation of manhour rates, the Arbitral Tribunal understands that these claims are adjustments sought in accordance with Clause 6.3 of the Equipment Contract, which provides that if IEC is to grant an extension of time it is also to grant a "*Contract Price adjustment as may be necessary and equitable to account for the delay suffered by Seller*."¹⁰⁸⁶
980. Thus the Arbitral Tribunal shall analyze these two claims separately, before analyzing the Counterclaimants' actual claims for changes/additional works.

¹⁰⁷¹ SoR, ¶¶673-678.

¹⁰⁷² SoR, ¶¶679-686.

¹⁰⁷³ SoR, ¶¶687-689.

¹⁰⁷⁴ SoR, ¶690.

¹⁰⁷⁵ Cs' PHB1, ¶217.

¹⁰⁷⁶ Cs' PHB1, ¶¶218-219.

¹⁰⁷⁷ Cs' PHB1, ¶¶220-222.

¹⁰⁷⁸ Cs' PHB1, ¶¶223-224.

¹⁰⁷⁹ Cs' PHB1, ¶225.

¹⁰⁸⁰ SoR, ¶¶641-650.

¹⁰⁸¹ Cs' PHB1, ¶228-230.

¹⁰⁸² Cs' PHB1, ¶231-232.

¹⁰⁸³ Cs' PHB1, ¶233-234.

¹⁰⁸⁴ See Rs' PHB1, ¶38, Table 4.

¹⁰⁸⁵ SoCC, ¶195.

¹⁰⁸⁶ See SoCC, ¶195.

981. As explained above,¹⁰⁸⁷ GEOG is not entitled to an extension of time for it has not given notice in writing of its claim for an extension of time, within seven Working Days after the date when the event became known to GEOG's personnel working on the Rumuji Plant, as required under Clause 6.3 of the Equipment Contract.

982. Hence, the claims for prolongations and escalation of manhour rates are dismissed.

b. Change order provisions in the Contracts

983. The Counterclaimants plead and analyze their claims for additional works primarily as "*entitlements under Clause 24 of the Equipment Contract and Clause 25 of the Services Contract.*"¹⁰⁸⁸ These provisions deal with Changes. Clause 1 of the Equipment Contract defines Change as "*any modification to the Plant.*" In turn, Clause 1.1 of the Services Agreement defines Change as "*any modification to the Services, which is agreed in accordance with Clause 25.*"

984. These definitions, read in conjunction with Clause 24.2 of the Equipment Contract and Clause 25 of the Services Contract, respectively, make clear that any modification of the scope of supply/services with any associated costs are Changes subject to Clause 24 of the Equipment Contract and Clause 25 of the Services Contract, respectively. The foregoing is consistent with the Parties understanding as evidenced throughout their pleadings in this arbitration.

985. As regards the Equipment Contract, the Arbitral Tribunal considers that, absent an agreed change order, any claims for additional costs for changes are excluded by Clause 24.2 of the Equipment Contract, the last sentence of which reads:

"No Change shall be made by Seller without a Change Order from Buyer, signed by representatives of each Party who have actual authority to legally bind Buyer or Seller and which Change Order will subsequently become an integral part of the Agreement."

986. This provision is unambiguous, and the Arbitral Tribunal cannot concur with GEOG's view that compliance with the Clause 24 of the Equipment Contract is not a condition precedent for claims for additional work¹⁰⁸⁹ and that "*the change provisions of the Contracts are 'liberal' rather than 'strict' notice provisions.*"¹⁰⁹⁰

987. The language of Clause 25 of the Services Agreement differs from that of Clause 24 of the Equipment Contract, but the spirit of both provisions is the same. Absent an agreed change

¹⁰⁸⁷ §X.B.1.c(3).

¹⁰⁸⁸ SoD, ¶255.

¹⁰⁸⁹ SoD, ¶¶240-254.

¹⁰⁹⁰ SoD, ¶244.

order, GE Nigeria was not required to provide any services in excess of the contractual scope.¹⁰⁹¹ Further:

"If mutually agreed, the changes will be documented in a written document signed by representatives of each Party who have actual authority to legally bind Buyer or Services Provider, along with any equitable adjustments in the Contract Price or the Time For Completion."

988. It follows that absent such documented mutual agreement, GE Nigeria is barred from making claims for additional costs.

c. Waiver/Estoppe

989. Further, the Arbitral Tribunal is not persuaded by the Counterclaimants' argument that IEC has waived and/or is estopped from relying on the contractual requirements for contractual changes by directing the GE Entities to perform work based on the representation that it would fairly compensate them for additional work.¹⁰⁹² The Arbitral Tribunal does not find that IEC made such representations but, on the contrary, it generally made explicit that it considered the works it requested GEOG to perform to be within the scope of the respective Contract.

990. Only in the case of the ICP does the Arbitral Tribunal find that IEC has acknowledged GEOG's right to pursue this claim despite there not being a change order, when it stated, in a communication of 12 February 2016:

*"With installation of the Plants in Rumuji progressing fast, the interconnecting pipes, tubing and cables for the second Plant will be needed on site in the next few weeks. This means that any delay in shipment of these components will delay completion of the entire project. We therefore request that you immediately release the equipment for shipment (or order and ship it in case of the cables), **without prejudice to your rights to maintain your position (i.e. that additional payment is required)**. If we cannot subsequently resolve the matter on some amicable/commercial basis, it can then be resolved under the dispute resolutions of the Contract. At present, however, there is absolutely no reason why GE should not comply with this request, especially since IEC has always fulfilled all its (financial) obligations under the Contracts with GE. Moreover,*

¹⁰⁹¹ "Services Provider is not obligated to proceed with the changed schedule or scope until both Parties agree to such change in writing."

¹⁰⁹² SoD, ¶¶239, 250, 255-259.

*IEC has posted financial security which more than covers the cost of the interconnecting pipes, tubing and cables.”*¹⁰⁹³

991. But, as explained above,¹⁰⁹⁴ the ICP is within the original scope of the Equipment Contract and, therefore, GEOG can claim no compensation in excess of the Contract Price.
992. In contrast to the ICP, for the other items of additional works claimed for by the GE Entities the Arbitral Tribunal has not been pointed to any statements by IEC that could be interpreted as a waiver or as a basis for IEC being estopped from relying on the contractual requirements for contractual changes.
993. As pointed out by IEC,¹⁰⁹⁵ both Contracts stipulate that no waiver “*shall be binding on either Party unless agreed to in writing by the Parties’ authorized representatives.*”¹⁰⁹⁶

(1) Equipment Contract

994. In particular, as regards the claims for additional work under the Equipment Contract:

(a) Bolt Changes

995. There is a suggestion made by IEC in this regard in a communication of 7 October 2016 “*that each side simply reserves its rights for now in connection with responsibility for the current situation (in the event no final agreement/solution is reached), but that we otherwise focus our efforts on an acceptable rectification of the situation which will enable us to put this matter behind us.*”¹⁰⁹⁷ However, this statement was made in the context of the negotiation of an agreement which at the end was not concluded.¹⁰⁹⁸ The evidence submitted by GEOG only shows that an agreement was reached with regard to the correction of certain minor items but not with regard to the substitution of galvanized bolts.¹⁰⁹⁹ GEOG asserts that, eventually, “*for the works’ progress, GEOG did deliver the galvanized nuts/bolts/washers and did employ local labour with GEOG’s supervision to replace the black bolts as required by IEC.*”¹¹⁰⁰ But there is no link between GEOG delivering and replacing the bolts and the aforementioned agreement for the correction of certain minor items, in the context of which statements were made that could amount to a waiver. Thus, there is no evidence on the record that could be interpreted as a waiver or as a basis for IEC being estopped from relying on the contractual requirements for

¹⁰⁹³ Exhibit R-99, emphasis added; as pre-discussed with IEC (see Exhibit C-413), GEOG confirmed by letter of 15 February 2016 (Exhibit R-100).

¹⁰⁹⁴ §X.B.1.d(3).

¹⁰⁹⁵ SoR, ¶571.

¹⁰⁹⁶ Clause 30.2 of the Equipment Contract and Clause 30.2 of the Services Agreement.

¹⁰⁹⁷ Exhibit R-4b, Attachment X2-3.

¹⁰⁹⁸ See Exhibit R-4b, Attachments X2-1 to X2-7.

¹⁰⁹⁹ See Exhibit R-4a, ¶¶X.2.2.13-X.2.2.15 and Exhibit R-4b, Attachment X2-8.

¹¹⁰⁰ Exhibit R-4a, ¶X.2.2.15.

contractual changes with regard to the bolt changes. On the contrary, as explained above,¹¹⁰¹ there is evidence that GEOG replaced the bolts after accepting responsibility for such replacement.

(b) Gas Composition Changes

996. GEOG's claims are for the costs of attending to fifteen requests made by IEC between 2 December 2014 and 15 March 2018,¹¹⁰² for assessment of the impact of different potential gas compositions.

997. On the occasion of the second inquiry of 12 January 2015, the parties discussed the contractual treatment of IEC's requests. GEOG first expressed the position that a change order is required:

*"If the study is for an additional gas source for trains 1 and 2, this represents a change to our existing contract. We will need a change order to perform additional analyses and studies [...]"*¹¹⁰³

998. IEC replied that GEOG had agreed to attend to such requests as part of the scope of the Equipment Contract:

"I like to remind you that GE made it clear that we can NOT get the hysys native file.

But as compensation GE will run a hysys simulation every time we ask for it. There is no need for COR or whatever. I can not remember that we agreed to define the reason why we need a hysys run, so I don't get the clue of this email.

*Our request is simple please run this gas composition in hysys with the parameters of the existing plant."*¹¹⁰⁴

999. GEOG replied

"GE agreed verbally to run Hysys simulations during contract negotiations, true. Our plan is as follows.

*[...] We will agree to run a 'first pass analysis' [...], and upon your request, we can run a deeper analysis. But since a full analysis typically requires several days [...]. We will need to ask for schedule relief (therefore change order)."*¹¹⁰⁵

¹¹⁰¹ ¶642.

¹¹⁰² See Exhibit RER-16, ¶5.6.3.3.

¹¹⁰³ Exhibit C-128, Email from Michael Cohen of 14 January 2015.

¹¹⁰⁴ Exhibit C-128, Attachment X3-2, Email from Werner Pirjns of 14 January 2015.

¹¹⁰⁵ Exhibit C-128, Email from Michael Cohen of 15 January 2015.

1000. The issue resurfaced again in early 2016, in connection with an output from Hysys provided by GEOG on 10 February 2016.¹¹⁰⁶ GEOG explained to IEC on 16 February 2016:

"What we presented last week is a preliminary Hysys analysis on the alternate gas. The next step, should you wish to move forward based upon your review of this preliminary analysis, is for GE to perform a complete analysis of the plant with this alternate gas. [...]

*I will convert the required engineering hours into a proposal to IEC, and will submit [...]."*¹¹⁰⁷

1001. GEOG followed up on 25 February 2016 by submitting a Proposal for Change Order priced at USD 203,000.¹¹⁰⁸

1002. IEC did not accept the Proposal for Change Order¹¹⁰⁹ and Mr Hillier, IEC's expert, explained in this regard "*I understand the outcomes of these discussions was GEOG's work did proceed but not to the extent envisaged in the letter of 25 February 2016.*"¹¹¹⁰

1003. As regards the remaining fourteen requests, GEOG did not submit any contemporary Proposals for Change Orders upon receiving any of those requests but only claimed for these alleged Changes later, in its global Proposal for Change Order of 29 June 2018.¹¹¹¹ Absent contemporary Proposals for Change Orders, IEC was entitled to consider that the analyses performed by GEOG were "first pass analyses" which were included within the scope of the Equipment Contract as per the verbal agreement during contract negotiations. There is no evidence to support GEOG's allegation that "*IEC requested not only looksee analysis, but complete evaluations of different gas compositions.*"¹¹¹² And the allegation is inconsistent with GEOG's failure to submit contemporary Proposals for Change Orders.

1004. IEC never waived its right to rely in this regard on the contractual requirements for contractual changes.

(c) Load Out Philosophy

1005. The Arbitral Tribunal does not need to decide whether the changes in load out process were covered by the Change Order Request No. 27, of 3 July 2015,¹¹¹³ as claimed by IEC,¹¹¹⁴ or not,

¹¹⁰⁶ Exhibit R-208, Email from Michael Cohen of 10 February 2016.

¹¹⁰⁷ Exhibit R-208, Email from Michael Cohen of 16 February 2016.

¹¹⁰⁸ Exhibit R-146; the proposal states that "*GE will perform the work after receipt of: Signed change order, [...].*

¹¹⁰⁹ Exhibit R-209, Email from Werner Pirijs of 27 February 2016,

¹¹¹⁰ Exhibit RER-16, ¶5.6.3.2.

¹¹¹¹ Exhibit R-4.

¹¹¹² Rs' PHB2, ¶119.

¹¹¹³ Exhibit C-15.

¹¹¹⁴ SoC, ¶¶451-452.

as maintained by GEOG.¹¹¹⁵ Regardless, the Arbitral Tribunal has not been pointed to any statements by IEC that could be interpreted as a waiver or as a basis for IEC being estopped from relying on the contractual requirements for contractual changes with regard to the load out philosophy issue. In fact, none of the Parties submitted contemporary evidence regarding this alleged change. Finally, the factual account in the Respondents' Quantum Report of 28 June 2018¹¹¹⁶ does not contain anything that could serve as a basis for waiver or estoppel.

(d) Power Generation

1006. The Arbitral Tribunal concurs with IEC's assessment¹¹¹⁷ that if GEOG considered that the uncertainties around the interface between the Trains and the power generation package gave rise to works in excess of the scope of the Equipment Contract, it should have raised the issue before making any change, i.e. before carrying out the additional work. At the very latest, IEC should have raised the issue on occasion of the negotiation of Change Order Request No. 27, of 3 July 2015,¹¹¹⁸ which dealt with power-related disputes.
1007. GEOG's objection that "*in the July 2015 Change Order there is no waiver of previous claims*"¹¹¹⁹ goes astray. The point is that GEOG's June 2018 claim is untimely, as it refers to additional work performed before July 2015.
1008. The Arbitral Tribunal has not been pointed to any statements by IEC that could be interpreted as a waiver or as a basis for IEC being estopped from relying on the contractual requirements for contractual changes with regard to power generation issue.

(e) IEC Delay with Technical Information

1009. The Arbitral Tribunal has not been pointed to any statements by IEC that could be interpreted as a waiver or as a basis for IEC being estopped from relying on the contractual requirements for contractual changes with regard to the delay by IEC with technical information.

(f) IEC Requests for Alternative Designs

1010. The Arbitral Tribunal has not been pointed to any statements by IEC that could be interpreted as a waiver or as a basis for IEC being estopped from relying on the contractual requirements for contractual changes with regard to the requests for alternative designs.

¹¹¹⁵ Rs' PHB2, ¶123.

¹¹¹⁶ Exhibit R-4a, ¶¶X4.2.1-X.4.14.

¹¹¹⁷ SoC, ¶¶453-454; see also SoR, ¶605.

¹¹¹⁸ Exhibit C-15.

¹¹¹⁹ Rs' PHB2, ¶126.

(g) BOG Compressor Inlet

1011. The Arbitral Tribunal has not been pointed to any statements by IEC that could be interpreted as a waiver or as a basis for IEC being estopped from relying on the contractual requirements for contractual changes with regard to the BOG compressor inlet.

(h) LNG Train Control System Spares

1012. The Arbitral Tribunal agrees with IEC that this is not an actual change.¹¹²⁰ Although GEOG included this claim within its “Change Order Requests” in the Quantum Report of 28 June 2018,¹¹²¹ this claim, as pled by GEOG, does not appear to be based on a change to the scope of the Equipment Contract but on a separate supposed request for the procurement of spare parts as foreseen in Clause 10.4. of the Equipment Contract, which provides that GEOG shall ensure that Strategic Parts remain available for a period of ten years after Taking Over. Hence, this claim is not dismissed on the grounds that it is excluded by Clause 24.2 of the Equipment Contract.

1013. However, the claim is dismissed for other reasons. GEOG alleges that “*when the control system supplier decided to discontinue its production, upon agreement with IEC, GEOG purchased these key spare parts.*”¹¹²² Had the purchase of the spare parts been agreed upon between GEOG and IEC, GEOG might be entitled to compensation. However, while IEC acknowledges that it has received those spare parts from GEOG,¹¹²³ it contests that this was based on an agreement between IEC and GEOG. IEC alleges that “[t]his was not requested by Claimants” but “*is management by GE of its own risk*” under Clause 10.4 of the Equipment Contract.¹¹²⁴ The Arbitral Tribunal considers that GEOG has not discharged its burden of proof in this regard. Mr Pagliaro has testified that GEOG purchased the spare parts “*upon agreement with IEC*”¹¹²⁵ but he did not provide any specifics about this supposed agreement. GEOG’s Quantum Report of 18 June 2018 only mentions “*In the monthly meeting on 6/7 December 2017, GEOG and IEC discussed the issue of the ‘Alan Bradley’ critical spares and the options available to deal with this.*”¹¹²⁶ But it also states that after finding out that the Alan Bradley hardware would ceased to be manufactured, “*as a prudent measure, early in 2018, GEOG purchased the key critical spare parts from ‘Alan Bradley’ exclusively for this IEC project*”¹¹²⁷ and that “*GEOG took the*

¹¹²⁰ SoC, ¶465.

¹¹²¹ Exhibit R-4a, ¶X10.

¹¹²² SoCC, ¶192.

¹¹²³ SoC, ¶465.

¹¹²⁴ SoC, ¶465.

¹¹²⁵ Exhibit RWS-4, ¶96.

¹¹²⁶ Exhibit R-4a, ¶X10.1.3.

¹¹²⁷ Exhibit R-4a, ¶X10.2.4.

reasonable, appropriate action of purchasing the critical control system hardware spares on behalf of IEC." Thus, the evidence on the record suggests that rather than a request or instruction by IEC for GEOG to purchase the spare parts, GEOG decided to purchase them on its own motion. Perhaps the issue was discussed between GEOG and IEC on 6/7 December 2017 but there is no evidence on the record that IEC ever agreed to the course of action eventually decided by GEOG. Hence, the Arbitral Tribunal finds that, unless IEC agrees to purchase the spare parts, or proceeds to use them or refuses to hand them back over to GEOG upon GEOG's request, GEOG is not entitled to claim any payment.

(2) Services Agreement

1014. As regards the Services Agreement, the Arbitral Tribunal does not share the Counterclaimants' view that when the parties reached an agreement in a meeting in Florence on 9 November 2016 regarding certain commitments by the GE Entities, it was "*clear that any works that fell outside of the Services Contract were extra work subject to additional compensation from IEC.*"¹¹²⁸ The Counterclaimants rely in this regard on an email exchange of 18-21 November 2016, in which it was stated "*GE and IEC to review jointly whether the above works under the Services Agreements.*"¹¹²⁹ In the Arbitral Tribunal's view, the Counterclaimants overstretch the meaning of this sentence. The sentence only reflects the parties' intention to jointly review whether the works agreed were within or without the scope of the Services Agreement. It does not go as far as to suspend the application of Clause 25 of the Services Agreement. Had the parties wished to do so, they should have clearly stated that the GE Entities would perform the works as agreed, without prejudice to their right to claim for additional payment to the extent the works are in fact beyond the scope of the Services Agreement, as they in fact did with respect to the delivery of the ICP.¹¹³⁰
1015. Further, the Arbitral Tribunal observes that, in a letter of 27 September 2017, GEOG stated "*We reserve all of our rights and remedies in this regard, including to charge IEC for any extra-work carried out so far.*"¹¹³¹ However, a unilateral reservation of rights by GEOG or GE Nigeria cannot entail a waiver by IEC or serve as a basis for IEC being estopped from relying on the contractual requirements for contractual changes, especially not if the reservation of rights is made after the fact, i.e. if it refers to alleged extra-work that has already been carried out in the past ("so far").

¹¹²⁸ SoCC, ¶164.

¹¹²⁹ Exhibit R-69.

¹¹³⁰ See above, ¶990.

¹¹³¹ Exhibit R-003b, Attachment Y8-1, p. 3.

1016. For none of the individual claims by GE Nigeria has the Arbitral Tribunal seen any statements by IEC that could be interpreted as a waiver or as a basis for IEC being estopped from relying on the contractual requirements for contractual changes.

1017. In particular:

(a) Additional Support Services

1018. It is not clear to the Arbitral Tribunal whether the Counterclaimants consider this claim to be based on a change to the scope of the Services Agreement, as per Clause 25, or on a call of Additional Employees, as per Clause 5.2(ii).

1019. The Statement of Claim refers¹¹³² in this regard to the first Hillier expert report, which analyses the claim as resulting from a change order.¹¹³³ Likewise, GEOG's Quantum Report of 18 June 2018 states that "*In accordance with the Services Contract, this Change Order request followed an instruction and various additional and changes requirements issued by IEC to GEN with respect to additional employees.*"¹¹³⁴ However GEOG's Quantum Report of 18 June 2018 also states, with express reference to Clause 5.2(ii),¹¹³⁵ that "*[a]ny employees who any [sic] complete works over and above the contracted amount period (i.e. 13 weeks and 3 people) falls within the contractual definition of 'additional employees' and GEN was entitled to charge their time on an hourly basis up to a maximum of 10 hours per day.*"¹¹³⁶

1020. In either case, for GE Nigeria to be entitled to claim for the additional scope/the Additional Employees, it would have to show either that a change order request was agreed or that IEC submitted a written request calling Additional Employees under Clause 5.2(ii) of the Services Agreement. Neither is the case.

1021. Indeed, GE Nigeria's own account shows that there was no actual request by IEC or agreement with IEC to set in motion the provision of services by GE Nigeria employees in excess of the Base Employees package:

*"However, as time progressed, those GEN site based personnel became more involved with IEC's requests Work [sic] outside the scope of the Services Contract, for example, assisting IEC with installation and construction activities at site and with IEC's pre-commissioning exercises. This resulted in GEN employees **continuing to expend***

¹¹³² SoC, ¶202.

¹¹³³ Exhibit R-7, §6.4.

¹¹³⁴ Exhibit R-3a, ¶Y.1.5.3.

¹¹³⁵ Exhibit R-3a, ¶Y.1.5.2, Footnote 22.

¹¹³⁶ Exhibit R-3a, ¶Y.1.5.2.

hours of work after extinguishment of the 'base employee' (3 people working for 13 weeks).

Therefore, a reasonable assessment is required to appropriately apportion the allocation of manhours executed by GEN personnel at site between the Parties.

*Such allocation is not straightforward because there was **no clear point of transition**. GEN's team undertook the works required, irrespective of whether they were GEN's or IEC's responsibility. Hence, there has been no contemporaneous allocation of time between the Parties on the respective timesheets.*¹¹³⁷

1022. Neither was there any statement by IEC that could be deemed a waiver or a basis for estoppel from relying on the contractual requirements for contractual changes or for calling Additional Employees.

(b) Additional 3rd party support services at site

1023. GE Nigeria has asserted that “[a]fter discussions with IEC, GEN undertook to provide the remaining / missing full scope of these [additional third party support] services on the basis that it would be reimbursed for the costs incurred in the provision of such services and equipment by IEC.”¹¹³⁸
1024. IEC denies that there is any “*indication that GE provided any notice to Claimants of their intent to procure these services before they were acquired.*”¹¹³⁹
1025. The Arbitral Tribunal has not been pointed to any evidence of an understanding between GE Nigeria and IEC which could be deemed a waiver or a basis for estoppel from relying on the contractual requirements for contractual changes.

(c) Third party strikes at site

1026. The Arbitral Tribunal agrees with IEC that his claim does not appear to be a Change.¹¹⁴⁰ However, given that GE Nigeria frames the claim this way, the Arbitral Tribunal shall assess it in accordance with Clause 25 of the Services Agreement.
1027. GE Nigeria has asserted that “[t]hese amounts have been previously detailed to IEC (with multiple requests for IEC to consider said changes under the Services Contract without

¹¹³⁷ Exhibit R-3a, ¶¶Y.1.6.5-Y.1.6.7, emphasis added.

¹¹³⁸ Exhibit R-3a, ¶Y2.3.2.

¹¹³⁹ SoC, ¶476.

¹¹⁴⁰ SoC, ¶481.

reciprocating review by IEC. By this document GEN reiterates its previous requests for a Change Order.”¹¹⁴¹

1028. Hence, by GE Nigeria’s own account, IEC has not agreed to a change order request in this regard.
1029. And the Arbitral Tribunal has not been pointed to any evidence of an understanding between GE Nigeria and IEC which could be deemed a waiver or a basis for estoppel from relying on the contractual requirements for contractual changes.

(d) Care and custody audit and rectification activities

1030. GE Nigeria has asserted that it “*submitted a change order request related to compensation to GEN for these additional works*” and that “*such change order has not been given the fair and sufficient review required under the Services Contract.*”¹¹⁴²
1031. Again, by GE Nigeria’s own account, IEC has not agreed to a change order request in this regard.
1032. And the Arbitral Tribunal has not been pointed to any evidence of an understanding between GE Nigeria and IEC which could be deemed a waiver or a basis for estoppel from relying on the contractual requirements for contractual changes.

(e) Defective materials management

1033. GE Nigeria has asserted that it “*submitted a change order request compensation for these additional works*” and that “*such change order has not been given the fair and sufficient review required under the Services Contract.*”¹¹⁴³
1034. Again, by GE Nigeria’s own account, IEC has not agreed to a change order request in this regard.
1035. And the Arbitral Tribunal has not been pointed to any evidence of an understanding between GE Nigeria and IEC which could be deemed a waiver or a basis for estoppel from relying on the contractual requirements for contractual changes.

(f) Accommodation and transportation

1036. GE Nigeria has asserted that “[a]fter discussions with IEC, GEN undertook to provide the missing accommodation and supporting security transportation scope of these services on the basis that

¹¹⁴¹ Exhibit R-3a, ¶Y3.1.3.

¹¹⁴² Exhibit R-3a, ¶Y5.1.5.

¹¹⁴³ Exhibit R-3a, ¶Y6.1.3.

it would be reimbursed for the costs incurred in the provision of such services and equipment by IEC.”¹¹⁴⁴

1037. However, this generic statement is not supported by any specific allegations or evidence. And, in any event, the Arbitral Tribunal has not been pointed to any evidence of an understanding between GE Nigeria and IEC which could be deemed a waiver or a basis for estoppel from relying on the contractual requirements for contractual changes.

(g) Coordination and project schedule

1038. GE Nigeria has asserted that “*GEN has fulfilled IEC’s requirement for a Project Schedule and has, through this schedule, provided ongoing updates of the works since early 2017*” and that “*GEN made it clear to IEC that GEN had no contractual obligation to perform such activities and that GEN considered this request by IEC to be additional works.*”¹¹⁴⁵

1039. This generic statement is not supported by any specific allegations or evidence. In fact, as pointed out by IEC, the available evidence suggests that it was GE Nigeria or GEOG who initiated the decision to bring on a scheduler.¹¹⁴⁶ This was confirmed by Mr Kassem, who testified that “*GEOG took the initiative to employ an overall project Planner.*”¹¹⁴⁷ Further, in a letter of 27 September 2017, GEOG stated:

“In line with our commitment we issued the integrated Schedule highlighting not just the activities within BHGE’s scope but including the interface with the balance of plant (BOP) items. This activity was not part of the original contract obligation of BHGE, but subsequent to our meetings this year we agreed to step up covering this gap in the overall execution.”¹¹⁴⁸

1040. In any event, by GE Nigeria’s own account, IEC has not agreed to a change order request, and the Arbitral Tribunal has not been pointed to any evidence of an understanding between GE Nigeria and IEC which could be deemed a waiver or a basis for estoppel from relying on the contractual requirements for contractual changes.

d. Unjust enrichment

1041. The Parties agree¹¹⁴⁹ on the principle set out in *MacDraw, Inc. v. The CIT Grp. Equip. Fin., Inc.* that “[t]he existence of a valid and enforceable written contract governing a particular subject

¹¹⁴⁴ Exhibit R-3a, ¶Y7.3.2.

¹¹⁴⁵ Exhibit R-3a, ¶Y8.1.4.

¹¹⁴⁶ SoC, ¶497.

¹¹⁴⁷ Exhibit RWS-5, ¶20.

¹¹⁴⁸ Exhibit R-003b, Attachment Y8-1.

¹¹⁴⁹ See SoD, ¶263, and SoR, ¶578.

matter ordinarily precludes recovery in quasi contract, i.e., unjust enrichment, for events arising out of the same subject matter.”¹¹⁵⁰

1042. However, the Counterclaimants invoke a decision in which the court supposedly “*allowed unjust enrichment claims where ‘the contract does not cover the dispute in issue.’*”¹¹⁵¹ and another decision that “*allowed recovery in quantum meruit for additional work that ‘was never the subject of the parties’ oral agreement.’*”¹¹⁵² And they argue that “*the additional work the GEOG Entities provided under the Contracts was so far beyond the contractual scope (i.e., and of a different character than merely supplying two modularized Trains and related services) that it is not covered by the Contracts’ change provisions.*”¹¹⁵³
1043. First, the Arbitral Tribunal notes that the Counterclaimants do not phrase this assertion in the hypothetical but they in fact posit that their counterclaims for additional works are not covered by the Contracts’ change provisions. This is of course irreconcilable with the primary manner in which they plead and analyze their claims for additional works, namely as “*entitlements under Clause 24 of the Equipment Contract and Clause 25 of the Services Contract.*”¹¹⁵⁴
1044. In any event, the Arbitral Tribunal does not agree that supposed additional works are, by reason of their allegedly different character, not covered by the Contracts’ change provisions. In *Mid-Hudson Catskill Migrant Ministry, Inc. v. Fine Hosp. Corp.*, relied on by the Counterclaimants, the Court found that the plaintiff cannot blow hot and cold and, in light of the fact that the parties had “*viewed the contract claim as covering all of the volunteers,*”¹¹⁵⁵ it concluded that it “*cannot credit plaintiff’s claim before this Court that the work providing the ‘extra’ volunteers was beyond the scope of its breach-of-contract action.*”¹¹⁵⁶ Similarly, in *Avir Constr., Inc. v. Antiquarium, Ltd.*, the Court found “*Plaintiff’s own quantum meruit claim is internally inconsistent in that it incorporates the allegations contained in the breach of contract claim (which allege the existence of a contract) and also states that the extra work was done pursuant to the contract.*”¹¹⁵⁷
1045. In that same decision, the Court found as follows:

“In Clark-Fitzpatrick, as here, ‘it is undisputed that the relationship between the parties was defined by a written contract, fully detailing all applicable terms and conditions, and specifically providing for project design changes with adjustments in compensation

¹¹⁵⁰ Exhibit RLA-71.

¹¹⁵¹ SoD, ¶263, quoting from Exhibit RLA-72.

¹¹⁵² SoD, ¶263, quoting from Exhibit RLA-73.

¹¹⁵³ SoD, ¶263.

¹¹⁵⁴ SoD, ¶255.

¹¹⁵⁵ Exhibit RLA-72, *176.

¹¹⁵⁶ Exhibit RLA-72, *177.

¹¹⁵⁷ Exhibit CLA-192, *446-447.

*contemplated in light of those changes' [...] A contractor cannot bring a quantum meruit claim for extra payments beyond the original contract price where there exists a contract governing how payment for extra work will be determined (Harder v Reedy, 217 AD2d 833).*¹¹⁵⁸

1046. The Arbitral Tribunal concludes that the situation that gives rise the Counterclaimants' claims for additional work is covered by the Contracts, thus leaving no room for claims of unjust enrichment.

e. Breach of Clause 1.7

1047. The Counterclaimants' claims for damages resulting from the breach by IEC of Clause 1.7 of both Contracts is predicated upon the factual allegation that "*IEC maintained its directions to perform the additional work in circumstances where IEC had represented to the GEOG Entities that it would fairly assess and compensate claims for work performed beyond the scope of the Contracts*" and that it "*maintained its directions to the GEOG Entities to perform that additional work with the knowledge that the GEOG Entities considered it to be beyond the scope of the Contracts and would be seeking compensation.*"¹¹⁵⁹

1048. These are, substantially, the same allegations on the basis of which the Counterclaimants advance their waiver and/or estoppel claims. For the same reasons for which the Arbitral Tribunal already dismissed those claims, it also dismisses this claim. IEC has not waived relying on the contractual requirements for contractual changes nor is it estopped from doing so. And it is not unreasonable for a party to invoke and insist on compliance with such requirements.

f. Conclusion

1049. Thus, all of the Counterclaimants' counterclaims for additional works under the Equipment Contract and the Services Agreement are dismissed.

D. Claims for breach of confidentiality obligations

1. Counterclaimants' position

1050. In the Statement of Counterclaim, the Counterclaimants state that they "*are aware of at least two instances in which IEC has disclosed GEOG confidential intellectual property with third parties, to Cryosys for the manufacture of the HHR system and to Softec for the validation of the flare load table*" and that they "*have reason to believe that IEC has also shared confidential GEOG drawings and documentation with other third parties.*"¹¹⁶⁰

¹¹⁵⁸ Exhibit CLA-192, *446.

¹¹⁵⁹ SoD, ¶266.

¹¹⁶⁰ SoCC, ¶222.

1051. The Counterclaimants submit that the foregoing breached Clause 22 of the Equipment Contract¹¹⁶¹ and they thus request “*request that the Arbitral Tribunal order IEC to (i) cease and desist from disclosure to unauthorized third parties of GEOG Confidential Information, (ii) return to GEOG all original copies of the documents shared with Softec and any other unauthorized third party, and (iii) destroy all copies of such documents in its possession.*”¹¹⁶²

2. IEC’s position

1052. In the Statement of Claim, IEC submits the following:

“GE has known for years that Claimants have had to involve third party agents in connection with this project, including Technip and other engineering consultants to assist with balance of plant issues. Claimants have always taken appropriate steps to protect any Confidential Information. At no point prior to the end of November 2018 — in the midst of this arbitration — has GE ever raised concerns about its supposedly confidential information.

GE raised its purported concerns for the first time with respect to Softec, an Italian engineering firm that had been assisting Claimants to understand how GE had failed to perform the basic stress testing on the structural supports for Trains 1 and 2, and that the supports were in fact inadequate. It is, therefore, not surprising that GE would want Claimants to stop working with Softec. But it has no contractual basis for that demand.

[...] To date, GE has failed to identify any particular information that qualifies as Confidential Information under the agreements. Rather, it appears to be GE’s position that any documents provided by GE to Claimants is Confidential Information. That is plainly not true, and there are a number of categories of information Claimants receive from GE pursuant to the agreements that it is free to use as needed for the project.”¹¹⁶³

3. Arbitral Tribunal’s analysis

1053. At the outset, the Arbitral Tribunal notes that this claim, based on Clause 22 of the Equipment Contract, is brought by both GEOG and GE Nigeria.¹¹⁶⁴ However, GE Nigeria has no standing under the Equipment Contract. Thus, the claim by GE Nigeria is dismissed.

1054. When on 28 November 2018 GEOG complained “*that apparently there is not [sic] NDA signed between SOFTEC and BHGE on this project*” and pointed out that “*BHGE documents including*

¹¹⁶¹ SoCC, ¶223.

¹¹⁶² SoCC, ¶225; see also Rs’ PHB1, ¶¶57-58.

¹¹⁶³ SoC, ¶¶503-507.

¹¹⁶⁴ See SoCC, ¶225.

the ‘Flare Load Table’, the ‘Safeguarding Memorandum Report’ and others are not for distribution to other companies or vendors,”¹¹⁶⁵ IEC replied on 5 December 2018 that its sharing of information with Softec was made “pursuant to a Non-Disclosure Agreement between IEC and Softec” and that “IEC has acted in full compliance with the relevant clauses of the contracts in question” but it invited GEOG to “please direct us to the particular contract provisions you feel have been breached so that we can have a more productive dialog.”¹¹⁶⁶

1055. GEOG wrote again on 7 December 2018 stating that “[t]he collaboration between your company and Softec is likely in violation of Section 22 of the [Equipment Contract],”¹¹⁶⁷ but it did not point at any particular obligation that might have been breached or at any specific Confidential Information such breach might have referred to.
1056. In its reply of 10 December 2018, IEC pointed out that “[l]ike your letter of 28 November, your letter of 7 December does not identify any particular Confidential Information (or ‘intellectual property’) that you believe may have been disclosed in violation of Section 22.”¹¹⁶⁸ Further, IEC repeated that “Softec is also bound by non-disclosure obligations consistent with Section 22 of the Equipment Contract.”¹¹⁶⁹
1057. Nonetheless, GEOG did not identify any particular Confidential Information it considered disclosed in breach of an obligation in Clause 22 of the Equipment Contract. And its allegations in the present arbitration remain no less generic.
1058. GEOG’s allegations regarding Confidential Information allegedly disclosed to Cryosys are even vaguer. Although GEOG supposedly found out about this breach on 6 March 2018,¹¹⁷⁰ it does not appear to have ever raised this issue up until the arbitration. And then it has not pointed at any particular obligation that might have been breached or at any specific Confidential Information such breach might have referred to.
1059. The further statement that “[t]he GEOG Entities have reason to believe that IEC has also shared confidential GEOG drawings and documentation with other third parties” is utterly unsubstantiated. In support of the supposed reasons for its belief, GEOG points¹¹⁷¹ at the witness statement by Mr Pagliaro who, however, merely voices a suspicion.¹¹⁷²

¹¹⁶⁵ Exhibit R-94.

¹¹⁶⁶ Exhibit C-760.

¹¹⁶⁷ Exhibit R-127.

¹¹⁶⁸ Exhibit C-759.

¹¹⁶⁹ Exhibit C-759.

¹¹⁷⁰ SoCC, ¶222; Exhibit R-92.

¹¹⁷¹ SoCC, ¶222.

¹¹⁷² Exhibit RWS-4, ¶66.

1060. Absent more specific allegations that would allow the Arbitral Tribunal to assess specific breaches of confidentiality obligations pursuant to Clause 22 of the Equipment Contract, this claim is to be dismissed.

XII. BHGE ENTITIES' COUNTERCLAIMS

A. BHGE Entities' position

1061. In the Statement of Counterclaim, the BHGE Entities claim USD 80,000 in legal costs which they incurred in the proceedings before the United States District Court, Southern District of New York, which were initiated by the Claimants to compel arbitration.¹¹⁷³

1062. In the Statement of Defense, the BHGE Entities increase the amount of this claim to USD 100,198.12.¹¹⁷⁴

1063. In the Respondents' First Post-Hearing Brief, the BHGE Entities point out that "*these costs are due to the Respondents independently of any decision by the Tribunal regarding the BHGE Entities as a party*" and that "*[t]he basis of the claim for these costs is simply the breach of the arbitration agreement in the Contracts.*"¹¹⁷⁵

B. IEC's position

1064. In the Statement of Claim, IEC defends the Petition to the United States District Court, Southern District of New York, stating that "*Claimants have a right to a definitive judicial resolution of that issue at the outset of these proceedings.*"¹¹⁷⁶

1065. In the Claimants' Second Post-Hearing Brief, IEC adds that "*[t]he award of costs and fees incurred in the New York proceedings was within the authority of the New York court*" and that "*[t]he court did not award BHGE its fees and this Tribunal has no basis to consider it.*"¹¹⁷⁷

C. Arbitral Tribunal's analysis

1066. With regard to this claim by the BHGE Entities, for the costs incurred in New York action to compel arbitration, the BHGE Entities have explained:

"What is important to note is that these costs are due to the Respondents independently of any decision by the Tribunal regarding the BHGE Entities as a party. The basis of the

¹¹⁷³ SoCC, ¶¶-218-221.

¹¹⁷⁴ SoD, ¶¶273-278.

¹¹⁷⁵ Rs' PHB1, ¶55.

¹¹⁷⁶ SoC, ¶501.

¹¹⁷⁷ Cs' PHB2, ¶157.

claim for these costs is simply the breach of the arbitration agreement in the Contracts.”¹¹⁷⁸

1067. The Arbitral Tribunal may not rule that it does not have jurisdiction over this claim, because IEC has not objected to the Arbitral Tribunal’s jurisdiction and is precluded from doing so after filing the answering statement to the counterclaim, pursuant to Rule R-7(c) of the Rules.
1068. However, the Arbitral Tribunal may –and has to– find that the BHGE Entities have no standing to bring claims under the Contracts’ arbitration agreements. Contrary to the contention by the BHGE Entities, this issue is not independent of the Arbitral Tribunal’s decision regarding the BHGE Entities as parties. Given that the Arbitral Tribunal has in fact found that the BHGE Entities are not parties to the Contracts or their arbitration agreements, they have no standing to bring substantive claims for breach of those arbitration agreements.
1069. Thus, the counterclaims brought by the BHGE Entities are dismissed.

XIII. INTEREST

A. IEC’s interest claims

1070. IEC seeks interest for the first time in the Claimants’ First Post-Hearing Brief.¹¹⁷⁹ Since GEOG did not object this late introduction of this request for interest, the Arbitral Tribunal gives its consent to the new claim pursuant to Rule R-6 of the Rules.
1071. IEC has not specified any dates prior to the issuing of this award from which it requests interest. Thus, the Arbitral Tribunal understands that IEC requests post-award interest.
1072. In this award it is determined that IEC is entitled to receive certain amounts from GEOG under the Equipment Contract, namely,
 - (i) USD 4,750,000 as payment of Liquidated Damages for delay in achieving the Delivery Date under Clause 6.5 of the Equipment Contract;
 - (ii) USD 1,375,130.89 as payment of direct damages related to the remediation of defects under Clause 17.4(i) of the Equipment Contract; and
 - (iii) USD 1,084,953.74 as payment of direct damages associated with delayed operation under Clauses 6.6(ii) and 17.4(i) of the Equipment Contract.
1073. Clause 7.3 of the Equipment Contract provides as follows:

¹¹⁷⁸ Rs’ PHB1, ¶55.

¹¹⁷⁹ Cs’ PHB1, ¶234(f), (g) and (h).

"7.3 In addition to other remedies under the Agreement, each Party shall pay interest to the other Party, at the rate of one percent (1%) per month (or any fraction thereof), not to exceed the lesser of:

- (i) twelve percent (12%) per annum; or,*
- (ii) the maximum amount permitted by applicable law if less than 12%;*

on all amounts not timely paid by that other Party in accordance with the Agreement."

1074. The Parties have not alleged any maximum amount permitted by applicable law.

1075. Thus, IEC is to be awarded interest on the above mentioned amounts from the thirty-first day following transmittal of this Final Award to the Parties, at the rate of one percent per month (or any fraction thereof), not to exceed twelve percent per annum.

B. GEOG's interest claims

1076. With respect to the amounts which this award has determined GEOG is entitled to receive from IEC, GEOG has requested interest at the contractual rate, as follows:

- (i) On the amount of USD 950,000 (due as payment for the "Plant Ready to Ship" Milestone for Train 2 under Clause 7.1 of the Equipment Contact), from 1 November 2016.¹¹⁸⁰

This request is to be granted as this amount was due since 16 October 2016.¹¹⁸¹

- (ii) On the amount of USD 4,750,000 (due as payment for the Mechanical Completion Milestone of Train 1 under Clause 7.1 of the Equipment Contact), as of 1 November 2016.¹¹⁸²

This request is to be granted only from 1 February 2020, which is the day following the day on which the amount became due.¹¹⁸³

- (iii) On the amount of USD 4,750,000 (due as payment for the Mechanical Completion Milestone of Train 2 under Clause 7.1 of the Equipment Contact), as of 1 January 2017.

This request is to be granted only from 1 February 2020, which is the day following the day on which the amount became due.¹¹⁸⁴

¹¹⁸⁰ Rs' PHB1, ¶61.

¹¹⁸¹ See above, ¶899.

¹¹⁸² Rs' PHB1, ¶61.

¹¹⁸³ Rs' PHB1, ¶61.

¹¹⁸⁴ Rs' PHB1, ¶61.

(iv) On the amount of USD 412,378 (due as payment of the outstanding price of purchase of spares), as of 1 January 2017.¹¹⁸⁵

This request is to be granted only from 7 April 2019, which is the day following the day on which the amount became due.¹¹⁸⁶

1077. Likewise, GE Nigeria has requested interest at the contractual rate¹¹⁸⁷ on USD 200,000 (due to GE Nigeria as payment for the Base Employees for the Mechanical Completion milestone of both Trains under the Services Agreement). However, the Arbitral Tribunal is not aware of GE Nigeria having indicated a date from which interest is requested.¹¹⁸⁸ Thus, the Arbitral Tribunal understands that GE Nigeria requests post-award interest. The request is to be granted.

XIV. COSTS

1078. The Claimants submit that the Respondents should be ordered to bear the following costs incurred by the Claimants:¹¹⁸⁹

- (i) USD 737,850,¹¹⁹⁰ the Claimants' 50% share of the ICDR's and Arbitrators' fees and costs;
- (ii) USD 4,881,662.91, in attorney's fees of Baker Botts;
- (iii) USD 2,649,705.50 in attorneys' fees of Freehill Hogan & Maher;
- (iv) USD 744,475 in attorneys' fees of Kanu Agabi & Associates;
- (v) USD 894,530.77 in experts' fees of Exponent;
- (vi) USD 1,200,194.81 in experts' fees of the Brattle Group;
- (vii) USD 1,484,629.40 in experts' fees of Diales at Driver Trett;
- (viii) USD 639,361.50 in experts' fees of Manderstam;
- (ix) USD 103,652.32 in experts' fees of the IFO Group;
- (x) USD 3,174.71 in payment to Mr Ed Griffin for the provision of his witness statement;
- (xi) USD 428,020.18 in internal travel costs;
- (xii) USD 13,744.66 in hearing venue costs;

¹¹⁸⁵ Rs' PHB1, ¶61.

¹¹⁸⁶ Rs' PHB1, ¶61.

¹¹⁸⁷ Clause 7.3 of the Services Agreement is virtually identical to Clause 7.3 of the Equipment Contract.

¹¹⁸⁸ See Rs' PHB1, ¶61; Exhibit RER-16, §7.

¹¹⁸⁹ Claimants' Cost Submission, ¶¶9-15.

¹¹⁹⁰ The amount indicated in the Claimants' Cost Submission, ¶15, was USD 737,850. Subsequently, the amount for this item increased to USD 875,350. In addition, there is an amount of USD 13,345.07 outstanding from the Claimants to the ICDR.

(xiii) USD 45,897.75 in hearing transcription costs;

(xiv) USD 434,473.60 in other expenses (attorney expenses, meals, computer research, electronic document storage, etc.).

1079. The Respondents submit that the Claimants should be ordered to bear the following costs incurred by the Respondents:¹¹⁹¹

- (i) USD 705,497.81,¹¹⁹² the Respondents' 50% share of the ICDR's and Arbitrators' fees and costs;
- (ii) USD 144,272.62 in in-house counsel fees;
- (iii) USD 15,505.64 in in-house counsel expenses;
- (iv) USD 84,008.25 in travel and leisure costs for witnesses;
- (v) USD 27,111.55 in travel and leisure costs for other resources;
- (vi) USD 846,643.36 in legal fees for SLCG;
- (vii) USD 148,159.18 in SLCG expenses;
- (viii) USD 221,544.18 in costs of King & Spalding;
- (ix) USD 160,282.90 in costs of United Lex;
- (x) USD 87,854.17 in costs of Alan Crain (external consultant);
- (xi) USD 2,127,727.82 in experts' costs of HKA;
- (xii) USD 302,613.86 in experts' costs of Fairway (Mr Hillier's first expert report);
- (xiii) USD 125,647.66 in experts' costs of Fairway (Mr Blinkhorn's expert report);
- (xiv) USD 234,251.74 in experts' costs of Hillier International (Mr Hillier's second expert report);
- (xv) USD 58,046.41 in experts' costs of Ms Kay Linnell;
- (xvi) USD 6,777.86 in additional in-house counsel fees and legal fees to prepare the Respondents' Comments on Cost Submission of 5 June 2020.¹¹⁹³

¹¹⁹¹ Respondents' Cost Submission, ¶45; the Respondents explain that they have expressed all amounts USD applying certain USD/EUR and USD/GBP exchange rates (Respondents' Cost Submission, ¶30); the Claimants have not objected to those exchange rates nor to the currency conversions made in Annex 1 to the Respondents' Cost Submission.

¹¹⁹² The amount indicated in the Respondents' Cost Submission, ¶45, was USD 705,497.81. Subsequently, the amount for this item increased to USD 792,089.81. In addition, there is an amount of USD 13,772.55 outstanding from the Respondents to the ICDR.

¹¹⁹³ Respondents' Comments on Cost Submission of 5 June 2020, ¶31.

1080. Pursuant to Rule R-47(c) and (d) of the Rules, the Arbitral Tribunal has the authority to award all of the foregoing costs. In particular, the Arbitral Tribunal may grant attorneys' fees given that all Parties have requested such award.

1081. Neither the Claimants nor the Respondents have made any distinctions between each claimant party and each respondent party.¹¹⁹⁴ Thus the Arbitral Tribunal's cost order shall be for joint and several payment by the Claimants or the Respondents, as the case may be.

1082. As informed by the Arbitral Tribunal on 23 January 2020, in response to the Respondents' inquiry made at the end of the Additional Hearing concerning the Arbitral Tribunal's cost decision, the Arbitral Tribunal shall apply the costs-follow-the-event rule.

1083. The Parties agree that the costs-follow-the-event rule should be a criterion for the allocation of costs. The Claimants consider that in addition to the extent to which the parties prevail in the arbitration (i.e. the costs-follow-the-event rule), regard should be paid to whether a party was "*forced to incur legal fees and expenses to prove issues that should have been candidly admitted.*"¹¹⁹⁵ Similarly, the Respondents submit that "[t]he outcome is the primary factor to be considered"¹¹⁹⁶ and it puts forward, as a second key factor, the conduct of the parties in the proceedings.¹¹⁹⁷

1084. The amount in dispute was USD 740,115,484.30, comprised of USD 700,000,000 in claims and USD 40,115,484.30 in counterclaims.

1085. The Claimants prevailed with respect to USD 36,263,191.33, i.e. 5%.

1086. The Respondents prevailed with respect to USD 703,852,292.97, i.e. 95%.

1087. The Arbitral Tribunal, having considered the Parties' allegations of other factors relevant to the cost decision,¹¹⁹⁸ is of the view that in the present case there are no circumstances that warrant a further adjustment of the result reached by applying the costs-follow-the-event rule.

1088. While the Arbitral Tribunal notes that there is a significant disproportion between the costs incurred by the Claimants' and those incurred by the Respondents,¹¹⁹⁹ the Arbitral Tribunal does not find either to be unreasonable.

¹¹⁹⁴ The Respondents complain that "*the Claimants offer no distinction between what costs were incurred by IEC or by Greenville*" (Respondents' Comments on Cost Submission of 5 June 2020, ¶21). But neither have the Respondents made any distinction among themselves.

¹¹⁹⁵ Claimants' Cost Submission, ¶8.

¹¹⁹⁶ Respondents' Cost Submission, ¶5.

¹¹⁹⁷ Respondents' Cost Submission, ¶4.

¹¹⁹⁸ Claimants' Cost Submission, ¶¶6-8; Respondents' Cost Submission, ¶¶8-29.

¹¹⁹⁹ See in this regard the Respondents' Comments on Cost Submission of 5 June 2020, ¶¶19-20.

1089. Thus, the Arbitral Tribunal finds that the Claimants shall bear 95% and the Respondents 5% of the costs of the arbitration. Specifically:

- (i) 95% of the administrative fees and expenses of the International Centre for Dispute Resolution totaling USD 149,367.32 and of the compensation and expenses of the arbitrators totaling USD 1,545,190.11 shall be borne by the Claimants and the remaining 5% shall be borne by the Respondents. Therefore, the Claimants shall jointly and severally reimburse the Respondents the sum of USD 721,134.49. This reimbursement payment should be made upon proof that all outstanding invoices of the ICDR/AAA and the arbitrators have been fully satisfied.
- (ii) The Claimants shall bear 95% of the Respondents' other arbitration costs totaling USD 5,295,945.01, i.e. USD 5,031,147.76, and the Respondents shall bear 5% of the Claimants' other arbitration costs totaling USD 14,261,373.11, i.e. USD 713,068.66. Therefore, the Claimants shall jointly and severally reimburse the Respondents the sum of USD 4,318,079.10.

1090. Moreover, the Arbitral Tribunal finds that the contractually agreed interest rate (as per Clause 7.3 of both the Equipment Contract and the Services Agreement) is also appropriate for the foregoing amounts. Therefore, interest shall accrue on those amounts from the thirty-first day following transmittal of this Final Award to the Parties, at the rate of one percent per month (or any fraction thereof), not to exceed twelve percent per annum.

XV. FINAL AWARD

For the reasons stated above, the Arbitral Tribunal,

- (i) Declares that it has no jurisdiction over the claims brought by Greenville.
- (ii) Dismisses all claims brought by Greenville for lack of jurisdiction.
- (iii) Declares that it has no jurisdiction over the claims brought against the BHGE Entities.
- (iv) Dismisses all claims brought against the BHGE Entities for lack of jurisdiction.
- (v) Dismisses the Respondents' request for a declaration that the Arbitral Tribunal has no power to award claims beyond the Contracts without assessing whether the contractual remedies were intended to address the breaches alleged by the Claimants.
- (vi) Declares that GEOG has breached the Equipment Contract.
- (vii) Orders GEOG to pay to IEC within thirty days from the date of transmittal of this Final Award to the Parties the sums of,
 - (a) USD 4,750,000 as payment of Liquidated Damages for delay in achieving the Delivery Date under Clause 6.5 of the Equipment Contract, plus interest from the thirty-first day following transmittal of this Final Award to the Parties, at the rate of one percent per month (or any fraction thereof), not to exceed twelve percent per annum;
 - (b) USD 1,375,130.89 as payment of direct damages related to the remediation of defects under Clause 17.4(i) of the Equipment Contract, plus interest from the thirty-first day following transmittal of this Final Award to the Parties, at the rate of one percent per month (or any fraction thereof), not to exceed twelve percent per annum; and
 - (c) USD 1,084,953.74 as payment of direct damages associated with delayed operation under Clauses 6.6(ii) and 17.4(i) of the Equipment Contract, plus interest from the thirty-first day following transmittal of this Final Award to the Parties, at the rate of one percent per month (or any fraction thereof), not to exceed twelve percent per annum.
- (viii) Orders IEC to pay to GEOG within thirty days from the date of transmittal of this Final Award to the Parties the sums of,
 - (a) USD 950,000 as payment for the "Plant Ready to Ship" Milestone for Train 2 under Clause 7.1 of the Equipment Contact, plus interest from 1 November 2016, at the rate of one percent per month (or any fraction thereof), not to exceed twelve percent per annum;
 - (b) USD 9,500,000 as payment for the Mechanical Completion Milestone of both Trains under Clause 7.1 of the Equipment Contact, plus interest from 1 February 2020, at the

rate of one percent per month (or any fraction thereof), not to exceed twelve percent per annum; and

(c) USD 412,378 as payment of the outstanding price of purchase of spares, plus interest from 7 April 2019, at the rate of one percent per month (or any fraction thereof), not to exceed twelve percent per annum.

(ix) Orders IEC to pay to GE Nigeria within thirty days from the date of transmittal of this Final Award to the Parties the sum of, USD 200,000 as payment for the Base Employees for the Mechanical Completion Milestone of both Trains under the Services Agreement, plus interest from the thirty-first day following transmittal of this Final Award to the Parties, at the rate of one percent per month (or any fraction thereof), not to exceed twelve percent per annum.

(x) Orders that 95% of the administrative fees and expenses of the International Centre for Dispute Resolution totaling USD 149,367.32 and of the compensation and expenses of the arbitrators totaling USD 1,545,190.11 shall be borne by the Claimants and the remaining 5% shall be borne by the Respondents. Therefore, it orders the Claimants to jointly and severally reimburse the Respondents the sum of USD 721,134.49, plus interest from the thirty-first day following transmittal of this Final Award to the Parties, at the rate of one percent per month (or any fraction thereof), not to exceed twelve percent per annum. This reimbursement payment should be made upon proof that all outstanding invoices of the ICDR/AAA and the arbitrators have been fully satisfied.

(xi) Orders that the Claimants shall bear 95% of the Respondents' other arbitration costs totaling USD 5,295,945.01, i.e. USD 5,031,147.76, and the Respondents shall bear 5% of the Claimants' other arbitration costs totaling USD 14,261,373.11, i.e. USD 713,068.66. Therefore, it orders the Claimants to jointly and severally reimburse the Respondents the sum of USD 4,318,079.10, plus interest from the thirty-first day following transmittal of this Final Award to the Parties, at the rate of one percent per month (or any fraction thereof), not to exceed twelve percent per annum.

(xii) Dismisses all other claims.

(xiii) This award is in full settlement of all claims and counterclaims submitted to this Arbitration.

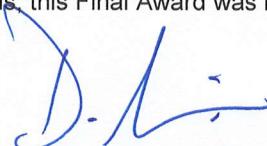
(xiv) This Final Award may be executed in any number of counterparts, each of which shall be deemed an original, and all of which shall constitute together one and the same instrument.

We hereby certify that, for the purposes of Article I of the New York Convention of 1958, on the Recognition and Enforcement of Foreign Arbitral Awards, this Final Award was made in New York, NY, USA.

October 30th, 2020

Date

David Arias, Chair



I, David Arias, do hereby affirm upon my oath as Arbitrator that I am the individual described in and who executed this instrument, which is our Final Award.

October 30th, 2020

Date

David Arias



Date

Paul F. Saba, Arbitrator

I, Paul F. Saba, do hereby affirm upon my oath as Arbitrator that I am the individual described in and who executed this instrument, which is our Final Award.

Date

Paul F. Saba

DISSENTING

Date

Stefano Azzali, Arbitrator

I, Stefano Azzali, do hereby affirm upon my oath as Arbitrator that I am the individual described in and who executed this instrument, which is our Final Award.

Date

Stefano Azzali

We hereby certify that, for the purposes of Article I of the New York Convention of 1958, on the Recognition and Enforcement of Foreign Arbitral Awards, this Final Award was made in New York, NY, USA.

Date

David Arias, Chair

I, David Arias, do hereby affirm upon my oath as Arbitrator that I am the individual described in and who executed this instrument, which is our Final Award.

Date

David Arias

October 30, 2020
Date

Paul F. Saba
Paul F. Saba, Arbitrator

I, Paul F. Saba, do hereby affirm upon my oath as Arbitrator that I am the individual described in and who executed this instrument, which is our Final Award.

October 30, 2020
Date

Paul F. Saba
Paul F. Saba

DISSENTING

Date

Stefano Azzali, Arbitrator

I, Stefano Azzali, do hereby affirm upon my oath as Arbitrator that I am the individual described in and who executed this instrument, which is our Final Award.

Date

Stefano Azzali

We hereby certify that, for the purposes of Article I of the New York Convention of 1958, on the Recognition and Enforcement of Foreign Arbitral Awards, this Final Award was made in New York, NY, USA.

Date David Arias, Chair

I, David Arias, do hereby affirm upon my oath as Arbitrator that I am the individual described in and who executed this instrument, which is our Final Award.

Date David Arias

Date Paul F. Saba, Arbitrator

I, Paul F. Saba, do hereby affirm upon my oath as Arbitrator that I am the individual described in and who executed this instrument, which is our Final Award.

Date Paul F. Saba
DISSENTING

Oct-20 30, 2020



Date Stefano Azzali, Arbitrator

I, Stefano Azzali, do hereby affirm upon my oath as Arbitrator that I am the individual described in and who executed this instrument, which is our Final Award.

Date Stefano Azzali

